HELSINKI SCHOOL OF ECONOMICS (HSE)
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INDUSTRY ANALYSIS

Performance of Internet Security Industry between Q1 2000 – Q1 2003

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ABSTRACT

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Objectives of the study

The aim of this study was not to replace traditional systematic approaches of industry and competitor analysis, but instead to contribute by supplementing information processing perspective to this systematic framework. With this we wanted to provide one possibility of how competitive information can be managed and processed from financial point of view. The ultimate objective of this study was to examine the performance of the internet security industry and the three sectors within it during the period between Q1 2000 and Q1 2003. In order to achieve this object, this study also focused on determining how the competitive environment and individual competitors can be identified. In addition, an appropriate framework was presented for financial analysis.

Methods of the study

This study has been carried out as a descriptive case study and it is a quantitative analysis. In the theory part, corporate strategy and strategic management were presented. After that, the study focused on industry analysis as a part of strategic management. Based on the strategic management theory, the traditional return on investment approach was discussed and decomposed into three factors: profitability, efficiency, and financial leverage. With this framework the performance on the internet security industry was examined. The data for the analysis was received from the official financial statements and quarterly reports in U.S. Securities and Exchange Commission's database.

Outcomes of the study

Low sales levels have decreased the profitability throughout the industry. Efficiency is also weak in the industry. This is partly a result from the low sales levels, but also due to heavy balance sheets. However, most of the assets are compounded of current assets. We think this reflects the precautionary measures arising from the poor economic conditions. These facts indicate that, on average, the firms throughout the industry are implementing differentiation strategy in their operations. Big firms have maintained their results positive, due to the diversified businesses, cash flows from other operations and economies of scale. However, smaller organizations operating only in the internet security industry have enhanced their operating performance and with this trend the outlook looks promising.

Key words: industry, industry analysis, strategy, strategic management, strategic position

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1 INTRODUCTION

1.1 Background

Today's world is under constant change. Business environment becomes more and more complex and organizations face new challenges in faster pace. Guiding a complex organization through this dynamic and rapidly changing environment requires an organization to have an effective strategic management process. This has been seen very clearly in information technology sector, which faced a massive growth phase in the late 1990's, but totally collapsed in the early 2000's. We can say that time and fast reaction ability has become a crucial factor in survival and profitability.

Firms seek to achieve competitive advantage, i.e. outperform the competitors. Strategic management consists of managerial decisions and actions that help to ensure that the organization formulates and maintains a beneficial fit with its environment. Maintaining a compatible fit between the firm and its environment is necessary for competitive advantage. Because both the environment and the organization change with the passage of time, this process is an ongoing concern for management.

An understanding of the business world requires familiarity with the strategic management. As global competition intensifies, and various stakeholders' influence on business operations expands. Hence an understanding of strategic management becomes more and more essential.

Every organization exists within a complex network of environmental forces comprised of value environment and operating environment. Operating environment is usually divided into national and global macroenvironment, and industry environment, in which the organization competes. Forces from the value environment and the macroenvironment are dynamic, and thus, their constant change present myriad opportunities and threats or constraints to strategic management.

Every firm also operates within a more specific environment termed an industry, i.e. a group of companies that produce competing products or services. The structure of an industry influences the intensity of competition among the firms within it, by placing certain restrictions upon their operations and by providing various opportunities for effectively managed firms to seize the advantage over their competitors. Successful management depends upon forging a link between organization and its external environment through the activities of an environmental analysis.

To gain competitive advantage over the rivals, an organization has to create an effective competitive strategy. However, it is extremely difficult to outmaneuver competitors without knowing what they are currently doing. In addition, rivals' strategies in today's global markets are highly interdependent. The strategic moves of one rival directly impact the others and may prompt counter strategies. Thus, the strategic positions and the performance of the competitors have direct relevance to choosing one's best strategy. Stern & Stalk (1998, 63) state that competitive advantage is a constantly moving target. The most successful organizations know how to keep moving and always stay on the cutting edge. The key to the fast and effective decisions is realistic and up-to-date information about the operating environment and the organization's strategic position in it. With the industry analysis the strategic decisions are based on better knowledge and therefore, the firm is able to foresee its competitors' reactions to strategic changes. With this information the organization can also allocate resources more effectively by getting to know its own strengths in relation to industry. Financial analysis of an industry can be used to evaluate how well the management implements the strategy and manages key success factors and risk by quantitatively analyzing operating, investing, and financing performance within the industry.

It is essential for every firm operating in a competitive environment to collect information about the competitive market situation in general. Accumulation and analysis of that information can be done systematically. In addition to this, the accumulation of information is obviously done implicitly by the various groups and

individual actors in an organization for their own, more specified purposes. (Pirttilä, 1997, 1)

1.2 Objectives of the study

The strategic management research has mostly approached the area of competitive environment and competitor monitoring in an analytical manner. The existent literature of competitor analysis and competitor intelligence provides a consistent framework for a firm to plan and organize its competitor surveillance and analysis functions in a systematic manner. Only a little attention has been paid, however, to the process in which organizational actors monitor the competitive environment and the process in which this monitoring is converted to actions that affect achievement of organizational goals. In addition, there is very little empirical evidence of how firms actually monitor their competitive environment, i.e. how they identify competitors and industry, how they collect the data, and how this information is analysed and used. It is evident that in addition to the systematic collection and the analysis of information, every organization accumulates competitive information also implicitly, i.e. knowledge about industry environment and competitors accrues without ever being recorded in structured form. (Pirttilä 1997, 4-5)

The aim of this study is not to replace traditional systematic approaches of industry and competitor analysis, but instead to contribute by supplementing information processing perspective to this systematic framework. With this we try to provide one possibility of how competitive information can be managed and processed from financial point of view. The ultimate objective of this study is to examine the performance of the internet security industry and the three sectors within it during the period between Q1 2000 and Q1 2003. The main problem can be stated as:

1) *Are there any significant distinctions between different sectors within the industry and their performance?*

To able to answer this problem, the following sub-problems have to be clarified:

2) *Which are the main competitors in the internet security industry?* How can the competitive environment and individual competitors be identified?

3) *How can the framework for financial analysis be structured?*

The target of this study is the internet security industry as a whole and the three sectors within it. This study does not, however, deal extensively with the perspective of an individual organization. Even if the organizational perspective is discussed, the focus of the study is on the three sectors within the industry.

1.3 Methodology

This study has been carried out as a descriptive case study. A case study typically involves a theoretical framework, which is then tried to apply into practice and to a certain object, an industry in this case. Case studies can be considered as an appropriate research strategy for a topic, where collection and analysis of quantitative data is needed. Furthermore, the research strategy applied in this study conform the critical features that Yin presents in his definition of case study strategy: case study *"investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used"* (Yin 1989, 23)

The ultimate units of analysis are the three sectors within the industry. The individual firms inside the sectors and the industry are not the focus of this study, even if the data of individual firms is analyzed in order to get the sector-level information.

The reliability and generalization of the results achieved by case studies have often been considered questionable. The aim and principal idea of case study research is to achieve a more profound and comprehensive view of the studied phenomena than it is possible by collecting a large amount of material. The generalization in this type of research is achieved by the profound understanding gained at the level of an individual phenomenon. According to Yin the method of generalization in the case study research is an analytic generalization in which a previously developed theory is used as a template with which to compare the empirical results (Yin 1989, 38)

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1.4 Limitations

In this study the internet security industry is divided into three sectors. The industry is vast and includes many sectors. The selection of the sectors covered in the study is subjective, and done by their relevance in the industry. These three sectors can be seen the most relevant in the industry. The problem of selecting which firms to include in the analysis was solved by using two market research firms' surveys and the list of the organizations covered in those. To get accurate information, the selected firm are publicly traded organizations, which are listed in NASDAQ. The represented firms cover 60-80% of the sectors total market size, depending on sector. The data of the rest of the firms, i.e. private sector organizations, in the sectors is not usually publicly available. Therefore, those firms are excluded from this study.

The data is received from the official financial statements and quarterly reports (10-K and 10-Q forms in U.S. Securities and Exchange Commission's database respectively). Because the data is from publicly available sources, financial information is corporate level information. Thus, for some of the firms covered in the study the data can be biased because the corporate level information includes also other operations than those in the internet security industry. However, we can see that the aim of the study is not just to examine the certain operation, but rather the organizations at the corporate level.

1.5 The structure of the study

This study is divided into two parts, theoretical and empirical. In Figure 1.1 is presented the structure of this study. Chapter 2 deals with the strategic management and strategic position of an organization. Here the basic concepts of the study are gone through. The strategic management and the analysis of strategic position as a part of that are also covered in this chapter.

Chapter 3 enters into the issues of industry and competitor information requirements and the actual usage patterns. In this way the motives for acquiring and accumulating industry and competitor information are assessed. Also, the role of strategy analysis and financial analysis is discussed here. Finally, the theoretical discussion is summarized to a conceptual framework for the industry analysis.

Chapter 4 contains the empirical part of the study. Here the sector-level data is analyzed. The aim is to achieve an in-depth understanding of sectors' past performance and factors affecting it.

Finally, chapter 5 gives a summary of the study and presents the conclusions that are drawn from the results of the theoretical and empirical analyses. In this chapter reliability and validity of this study are also discussed.

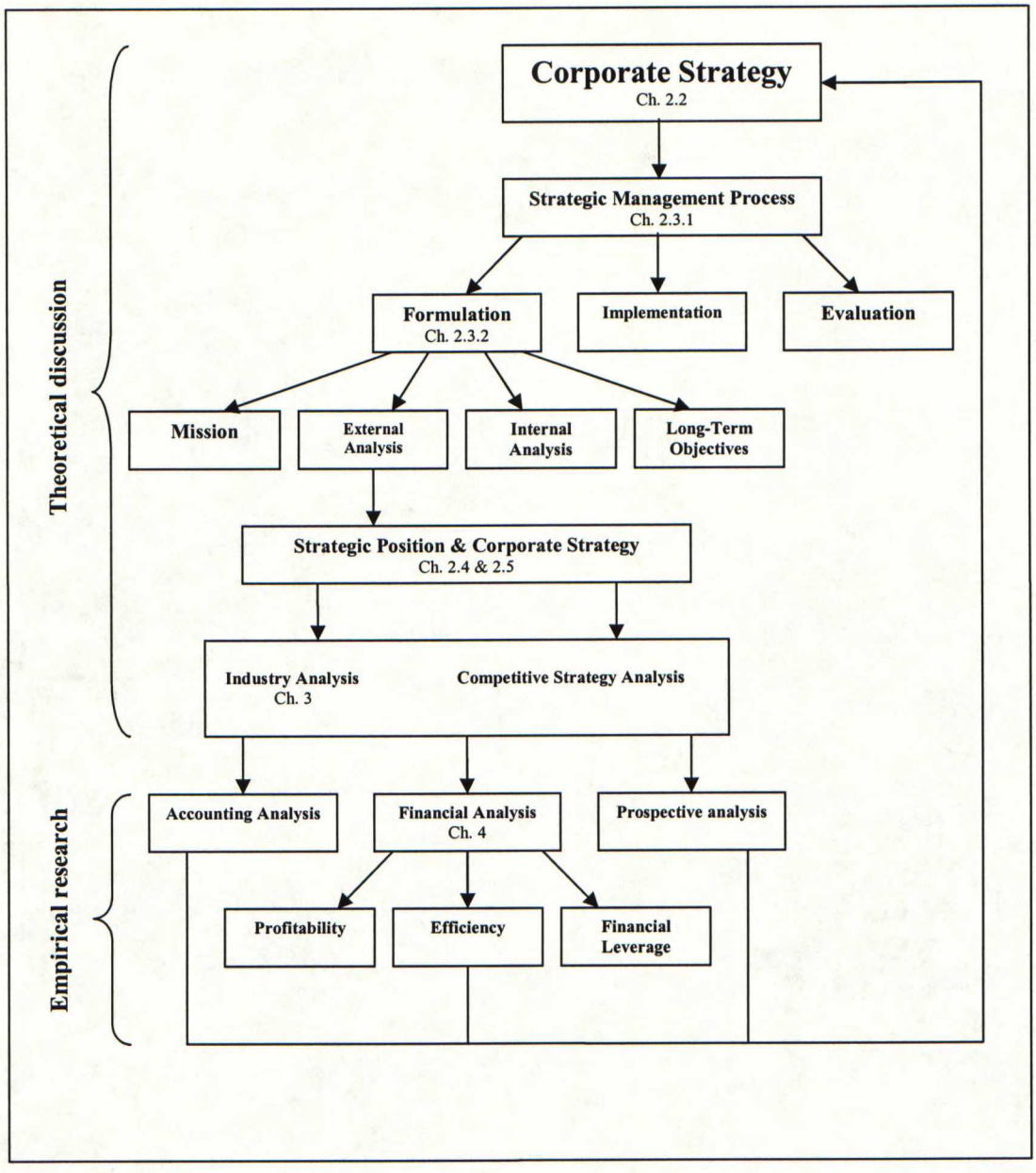

Figure 1.1 The structure of the study

2 CORPORATE STRATEGY AND STRATEGIC MANAGEMENT

2.1 Definition of basic concepts

2.1.1 Organization

This study examines a certain industry, here the internet security industry. Industry is compounded of various organizations. To define *an organization,* we use first synthetic approach, and then, as a complementary definition to the previous, operational, or stakeholder approach.

In accordance to *synthetic definition,* an organization is an organized unit, which operates as a coherent financial system and communicates with external systems through purchasing, sale and financial markets. (Kyläkoski 1974, 23). Operations can be divided into certain functions, which are linked to each other as a one process system. These functions are controlled through different managerial, administrative planning processes. According to the definition, part of the operations occurs inside the organization while purchasing, sale and financing are handled outside the organization, in external markets.

Operational definition states the organization is a coalition of various stakeholder groups' actions and decision-making. (e.g. Kettunen, 1974 b, 41; Kyläkoski 1974, 10-23). Stakeholders are e.g. management, personnel, owners, lenders, customers, suppliers and government, those who are tied to the organization by giving their contribution in return for compensation. In that case stakeholders form together with the organization an interrelated coalition. (Kyläkoski, 1990, 21)

2.1.2 Environment

The environment can be divided into two fields; value environment and operating environment (Kyläkoski 1980, 28-29). *The value environment* is outside the operating environment, and therefore has both direct and indirect effect on it. The value environment creates and maintains those beliefs and norms, which the organization is expected to fit in. To define this fulfilment a stakeholder, or an external assessor measures and evaluates the organization's activities. Finally, this estimation focuses on exchange activities between the organization and its stakeholders, through which the value environment has effect on the organization. The environmental change may unfold as a new strategic challenge but also as an innovation, expected by the value environment, which reveal new scopes of action. (Kyläkoski 1990, 22)

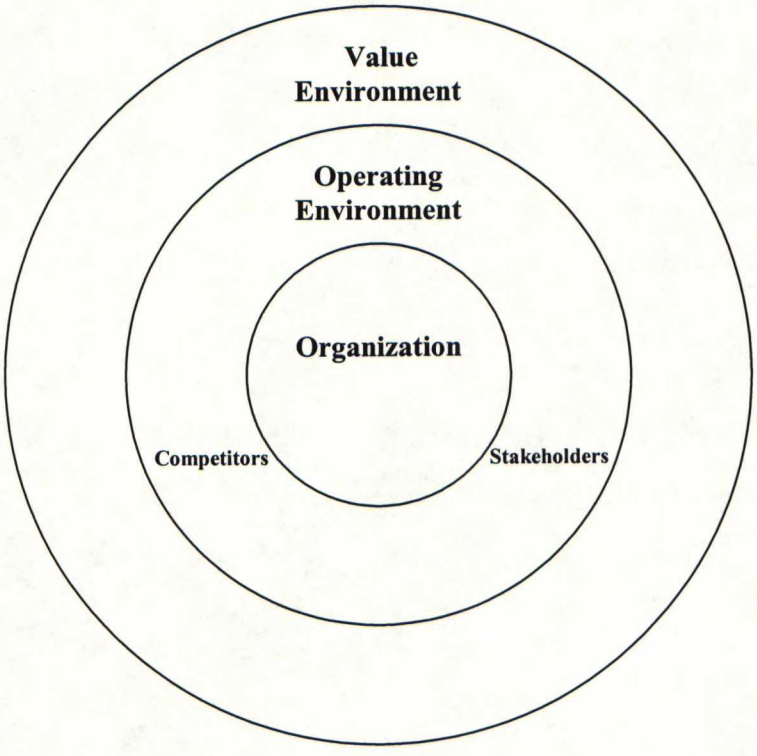

Figure 2.1 **Organization and its environment (based on Wright et al. 1998, 32; Kyläkoski 1990, 124)**

Operating environment is the environment which has a direct linkage to the organization. This connection occurs as both material and information flows between the organization and its stakeholders, but also, its competitors. Exchange activities affiliated to material flows are inputs and outputs which are measurable with the measures from real and monetary process. Information flows emerge when different parties swap information. This information is valuable for the management in management and planning processes. Also, the competitors and the competitive environment are included in the definition of operating environment, because both are permanent elements in a market economy and have substantial effect on organization's performance. (Kyläkoski 1990, 22; Porter 1980, 4; Porter 1985, 5)

Operating environment is usually further divided into national and global macroenvironment, and industry environment, in which the organization competes. Forces from value environment and macroenvironment are dynamic, and thus, their constant change present myriad opportunities and threats or constraints to strategic management.

Operating environments have been described and categorized by concentrating on different environmental characters, and their bilateral interdependencies and changes. Mintzberg arrived at following dimensions: (Mintzberg, 1979, p. 267)

stability: stable – dynamic
complexity: simple – complex
market diversity: integrated – diversified
hostility: munificent - hostile

In these dimensions both the increasing complexity and dynamics effect graduated uncertainty. Out of these two, the increasing dynamics in the environment has proved to be more problematic for organizations. Market diversity increases when the organization has diversified product and/or market portfolio. This adduces uncertainty, for example, on future market growth and customers' needs. The

environmental hostility has various manifestations, which may directly effect on operations. It has been linked at least to nature and intensity of competition, supply of strategically substantial resources and legislative terms. Increasing hostility and decreasing stability may denote such strong uncertainty, that predicting the future environment becomes impossible. (Kyläkoski, 1990, 82)

When the organization operates in the global markets, it faces more diversified operating environment. This kind of situation is very problematic for the organization, as it has to integrate its operations to every vulnerable environment. To sustain its strategic position, the management of the organization has to direct the strategic focus to exploitable environments, away from those it can not benefit from. Finally, both these situations lead to the change of the current strategic position. (Kyläkoski 1990, 84)

Another element, which can be related to the concept of hostility, is technological development. The faster the technological evolution is and the more capital-intensive the industry becomes, the riskier the operations of the organization are. Technological development, as well as other environmental factors, affects also the product and market life-cycles. The shorter the life-cycles are, the more difficult it becomes to prepare forecasts and analyses about the future changes and trends in the operating environment. (Wikström 2002, 29)

2.1.3 Industry

A great deal of attention has been directed at defining the relevant industry and it boundaries. Porter's (1980, 1985) models reduce the need for debates on where to draw industry boundaries. However, this has been criticized not focusing on relevant firms. Bain (1952) defined an industry as a "group of close-substitute products, each of which is sold entirely to a common group of buyers." Any definition of an industry is essentially a choice of where to draw the line between established competitors and

substitute products, between existing firms and potential entrants, and between existing firms and suppliers and buyers.

2.1.4 Competitors

Clearly all significant *existing competitors* must be included in the industry analysis. However, it may also be important to analyze the *potential competitors* that may come on the scene. Forecasting potential competitors is not an easy task, but they can often be identified from the following group: (Porter, 1980, 49-51)

- firms not in the industry but who could overcome entry barriers particularly cheaply;
- firms for whom there is obvious synergy from being in the industry;
- firms for whom competing in the industry is an obvious extension of the corporate strategy;
- customers or suppliers who may integrate backward or forward.

It is also important to follow possible mergers and acquisitions that might occur either among established competitors or involving outsiders. A merger can immediately increase the importance of a weak competitor or strengthen an already strong one. Porter has been criticized that his models does not pay enough attention to the most important competitors. Pirttilä (2000, 26-27) suggests that only the major competitors should be recognized and observed instead of wasting resources in in-depth analyses of minor and less important competitors. In study, the competitors are defined as a part of the industry environment.

2.1.5 Stakeholders

The significance of assessing environmental circumstances goes also to all the stakeholders of the company. As the function of the firm is to serve its stakeholders,

i.e. to create value to its stakeholders, it is obvious that the stakeholders expectations should be taken as a starting point in all long-term decisions made in the firm. The stakeholders provide the organization with all the prerequisites it needs in order to operate successfully. But as a counterpart, they expect to receive an adequate compensation for their contribution. Naturally, the nature of the contribution made varies a lot depending on the role and expectations of the stakeholders. (Wikström, 2002, 30) Although several definitions of stakeholders have been proposed, the common theme is that a stakeholder is any group or individual who can affect, or be affected by, a particular organization, such as shareholders, employees, consumers, suppliers and government agencies (Rhenman 1972, 27-30)

All the relevant stakeholders in an industry will influence the selected strategy and its implementation. The relative power of these constituent groups is very substantial and may change over time or because of the particular strategic issue, which is dominant at any particular time. Therefore, the management should cater for the interests of the shareholders as well as the other stakeholders while deciding on the long-term strategy of the company and in the continuous implementation and updating of that strategy. (Ward, 1992, 6) The relationship between the organization and its stakeholders can be described as an exchange relationship. The stakeholders invest different inputs in the organization in order to receive compensation for these. From stakeholders' point of view, the organization's most important goals are to confirm the continuity of its operations and the ability to generate compensation for their stakes. As the inputs of the different stakeholders vary, some of them are more important for the organization than others. This creates a hierarchical order of importance for them. The most important stakeholders may have the power to even determine about the continuity of the organization's activities. These stakeholders must sometimes be consulted upon the most substantial strategic decisions and plans. (Kyläkoski, 1990, 86-87)

2.2 Corporate strategy

Strategy and strategic management have been key subjects in business for decades. Originally the strategy concept was defined as part of military science. In business life the concept arrived in 1950's (Ansoff 1984, 52). Ansoff (1968, 94) is convinced about the necessity of corporate strategy in today's world. He states that the interest towards strategy grew out of realization that a firm needs a well-defined scope and growth direction that objectives alone do not meet this need, and that additional decision rules are required if the firm is to have orderly and profitable growth. Such decision rules and guidelines have been broadly defined as strategy, or alternatively, as a concept of the firm's business.

Strategy can be understood in various ways. Mintzberg et al. (1995, 3) state that there is not any single widely accepted definition. However, these authors define strategy as follows: "*A strategy is the pattern or plan that integrates an organization's major goals, policies and action sequences into a cohesive whole. A well-formulated strategy helps to marshal and allocate an organization's resources into a unique and viable posture based on its relative internal competencies and shortcomings, anticipated changes in the environment and contingent moves by intelligent opponents*" (Mintzberg et al. 1995, 5)

The strategy is affected mainly by the stakeholders, value environment and operating environment. Stakeholders have set expectations for the firm. These expectations they expect to become true as an output to the contribution or input they have invested in. The strategy should, therefore, aim to promote the achievement of these expectations. The environment has a significant role in the process, because it enables the organization to operate. In order to be profitable, the firm must be able to adapt to the circumstances in which it operates. While planning the strategy, the management must fully aware of the organization's position in the markets and the environment. Therefore, one of the most difficult stages in the strategy development process is the

acquisition of external information and analysis of that. If this information is not accurate, the decisions and conclusions made based on that may be false.

2.3 Strategic management

Strategic management can be defined as the art and science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its objectives. As this definition implies, strategic management focuses on integrating management, marketing, finance/accounting, production/operations, research and development, and information systems to achieve organizational success.

2.3.1 Strategic management process

The framework illustrated in Figure 2.1 is a widely accepted, comprehensive model of the strategic management process. The focus of this study, industry analysis, is part of external audit, which is one phase in strategy formulation. Identifying an organization's existing mission, objectives, and strategies is the logical starting point for strategic management because a firm's present situation and condition may preclude certain strategies and may even dictate a particular course of action. Every organization has a mission, objectives, and strategy, even if these elements are not consciously designed, written, or communicated. The answer to where an organization is going can be determined largely by where the organization has been. The strategic management process is dynamic and continuous. A change in any one of the major components in the model can necessitate a change in any or in all of the other components. For example, a shift in the economy could represent a major opportunity and require a change in long-term objectives and strategies, or a failure to accomplish annual objectives could require a change in policy, or a major competitor could announce a change in strategy that requires a change in the firm's mission. Therefore, strategy formulation, implementation, and evaluation activities should be

performed on a continual basis. The strategic management process consists of three stages: strategy formulation, strategy implementation, and strategy evaluation. However, the process is not as cleanly divided and neatly performed in practise as the model suggests. (David, 1997, 4-15)

Strategy formulation includes developing a business mission, identifying an organization's external opportunities and threats, determining internal strengths and weaknesses, establishing long-term objectives, generating alternative strategies, and choosing particular strategies to pursue. Strategy formulation issues include deciding which new businesses are entered and which abandoned, how to allocate resources, whether to expand operations or diversify, whether to enter international markets, whether to merge or form a joint venture, and how to avoid a hostile takeover. Stages of strategy formulation are covered more detailed in the following section. *Strategy implementation* requires a firm to establish annual objectives, device policies, motivate employees, and allocate resources so that formulated strategies can be executed; strategy implementation includes developing a strategy-supportive culture, creating an effective organizational structure, redirecting marketing efforts, preparing budgets, developing and utilizing information systems, and linking employee compensation to organizational performance. *Strategy evaluation* is the final stage in strategic management. Management needs to get feedback to know which particular strategies are not working well, and strategy evaluation is the primary means for obtaining this information. All strategies are subject to future modification because external and internal factors are constantly changing. Three fundamental strategy-evaluating activities are 1) reviewing external and internal factors that are the bases for current strategies, 2) measuring performance, and 3) taking corrective actions. Strategy evaluation is needed because success today is no guarantee for success tomorrow. (David, 1997, 5-6)

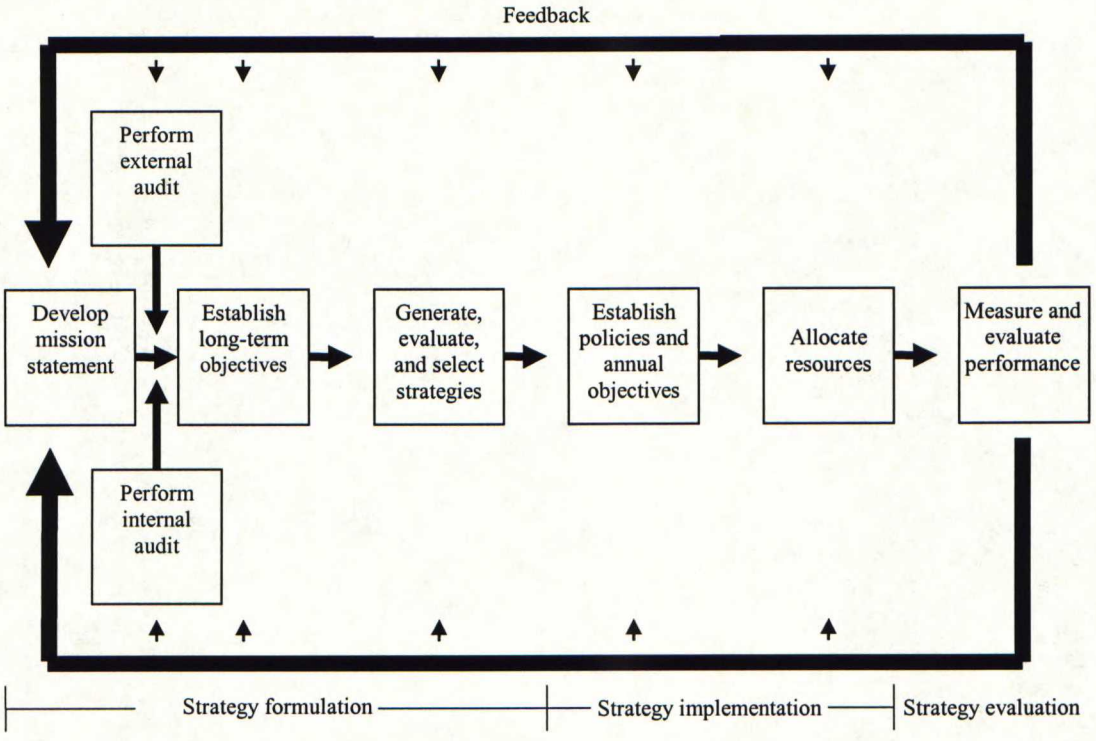

Figure 2.2 A strategic management process model (David 1997, 13)

2.3.2 Strategy formulation

2.3.2.1 Business mission

Every organization has a unique purpose and reason for being. This uniqueness should be reflected in a statement of mission. The nature of a business mission can represent either a competitive advantage or disadvantage for the firm. An organization achieves a heightened sense of purpose when strategists, managers, and employees develop and communicate a clear business mission. Drucker (1974) says developing a clear business mission is the first responsibility of strategists. A good mission statement reveals an organization's customers, products or services, markets, technology, concern for survival, philosophy, self-concept, concern for public image, and concern for employees. These nine basic components serve as a practical framework for evaluating and writing mission statements. Being the first step in

strategic-management, the mission statement provides direction for all planning activities. A well-designed mission statement is essential for formulating, implementing, and evaluating strategy. Developing and communicating a clear business mission is one of the most commonly overlooked tasks in strategic management. Without a clear mission statement, a firm's short-term actions can be counterproductive to long-term interests. The mission statement should always be subject to revision, but if carefully prepared, it will require major changes only infrequently. Organizations usually re-examine their mission statement annually. Effective mission statements stand the test of time. (David, 1997, 78-93)

2.3.2.2 The external assessment

Due to increasing turbulence in markets and industries around the world, the external audit has become an explicit and vital part of the strategic management process. It provides a framework for collecting and evaluating economic, social, cultural, demographic, environmental, political, governmental, legal, technological, and competitive information. Firms that do not mobilize and empower their managers and employees to identify, monitor, forecast, and evaluate key external forces may fail to anticipate emerging opportunities and threats and, consequently, may pursue ineffective strategies, miss opportunities, and invite organizational demise. Firms not taking advantage of various information channels are falling behind technologically. A major responsibility of strategists is to ensure development of an effective external audit system. This includes using information technology to devise a competitive intelligence system that works. The external audit is an essential part of strategic management in any size or type of organization. Typically the external audit process is more informal in small firms, but the need to understand key trends and events is not less important to those firms. The five-forces model, for example, can help strategists evaluate the market and industry, but this kind of tool must be accompanied by good intuitive judgement. Multinational firms especially need a systematic and effective external audit system because external forces vary so greatly

among foreign countries. An important part of an external audit is to identify rival firms and to determine their strengths, weaknesses, capabilities, opportunities, threats, objectives, and strategies. Collecting and evaluating information on competitors is essential for successful strategy formulation. Identifying major competitors is not always easy because many firms have divisions that compete in different industries. Most multidivisional firms generally do not provide sales and profit information on a divisional basis for competitive reasons. Also, privately held firms do not publish any financial information. (David, 1997, 102-131)

2.3.2.3 The internal assessment

Management, marketing, finance/accounting, production/operations, research and development, and computer information systems represent the core operations of most businesses. A strategic management audit of a firm's internal operations is vital to organizational health. Many organizations still prefer to be evaluated solely on their bottom-line performance. However, an increasing number of successful organizations are using the internal audit to gain competitive advantage over rival firms. Systematic methodologies for performing strength-weakness assessments are not well developed in the strategic management literature, but it is clear that strategists must identify and evaluate internal strengths and weaknesses in order to formulate and choose among alternative strategies effectively. Different matrix frameworks and a clear statement of mission provide the basic information needed to formulate competitive strategies successfully. The process of performing an internal audit represents an opportunity for managers and employees throughout the organization to participate in determining the future of the firm. Involvement in the process can energize and mobilize both managers and employees. (David, 1997, 140-166)

2.3.2.4 Long-term objectives

The next part of the strategy formulation is an establishment of long-term objectives, generation of alternative strategies, and selection of strategies to pursue. The strategy analysis and choice seeks to determine alternative courses of action that could best enable the firm to achieve its mission and objectives. The firm's present strategies, objectives, and mission, coupled with external and internal audit information, provide a basis for generating and evaluating feasible alternative strategies. *Long-term objectives* represent the results expected from pursuing certain strategies. These represent the actions to be taken to accomplish long-term objectives. The time frame for objectives and strategies should be consistent, usually from two to five years. Objectives can be defined as specific results that an organization seeks to achieve in pursing its basic mission. Objectives are essential for organizational success because they provide direction, aid in evaluation, create synergy, reveal priorities, allow coordination, and provide a basis for effective planning, organizing, motivating, and controlling activities. Objectives should be challenging, measurable, consistent, reasonable, and clear. In multidimensional firm, objectives should be established for the overall organization and for each division. (David, 1997, 174-202)

2.4 Strategic position

The organization's strategic position emphasizes how the organization is situated in its value- and operating environment (see Figure 2.3). Strategic position is a revered theoretical paradigm of an organizational adaptation and has a critical role in the strategic management. Environment and strategy interact in a dynamic coalignment process (Miller 1988) and the resulting fit between strategy and its environmental context has positive implications for organizations performance.

The basic premise for the going concern in organizations is timely and localized *compatibility* of all functions between the organization and external stakeholders

(Kyläkoski, 1980, 30; Wikström, 2002, 11). Authors have concretized this compatibility with a concept of *corporate strategic position* (e.g. Ansoff 1965, 98-99).

Strategic position refers to the external environment's impact on strategy , internal resources and competences, and the expectations and influence of stakeholders. Understanding the current strategic position is an essential part in developing the future strategy. The management needs to identify on-going changes in the environment, and how they will affect the organization and its operations. These are important issues especially in businesses operating in a dynamic environment, i.e. where the environment is under constant change, to provide competitive advantage. The reason for understanding the strategic position is to know which opportunities and threats are created by the environment, the strengths and weaknesses of the organization and the expectations of stakeholders (Jonhson & Scholes 1997, 16).

- The environment. The organization operates in complex commercial, political, economic, social, technological, environmental, and legal world. This environment is under constant change. Understanding how this affects the organization includes investigating historical effects, as well as potential future changes in environmental variables. However, usually the number of those variables is so great that it may be impossible or unrealistic to investigate or understand each one. Therefore it is useful to concentrate on certain key environmental impacts. (Jonhson & Scholes 1997, 18).

- The resources and competences form the organization's strategic capability. As the environment creates outside influences on the organization and its strategy, so these are internal factors. One way to enlarge organizations strategic capability is to consider its internal strengths and weaknesses. With this, the purpose is to form a view of the internal influences and constraints on different strategic choices.

- The preceding two sections do not recognise the complex role that people have in strategic evolution. Strategy is also about what people *expect* an organization to achieve, and what influence people can have over an organization's purposes. The main issue with an organization's *purpose* is the *corporate governance*. Which view dominates depends on which stakeholder group has the greatest power. Understanding this may have significant role in recognising why an organization follows the certain strategy.

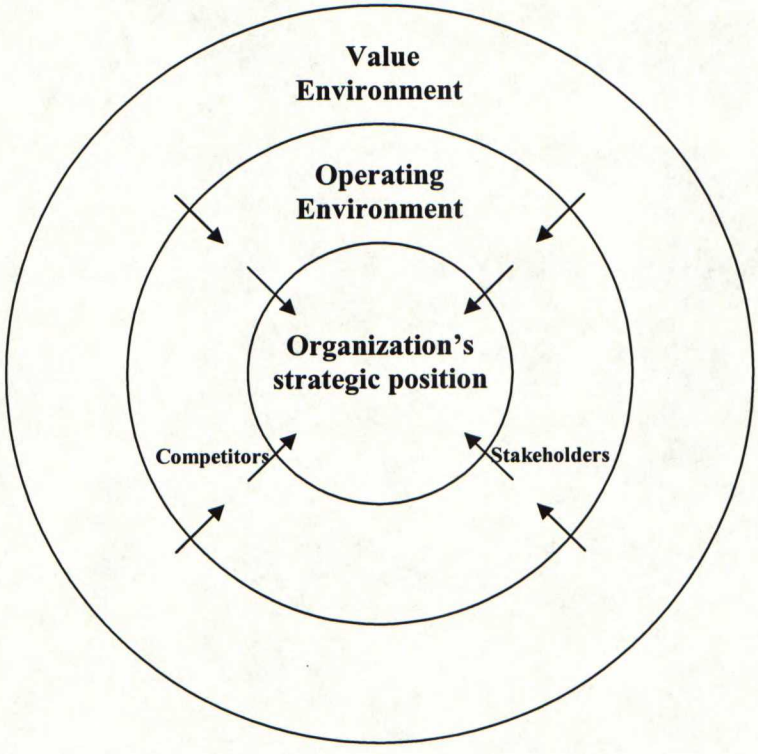

Figure 2.3 **Elements of organization's strategic position (based on Wright et al. 1998, 32; Kyläkoski 1990, 124; Johnson & Scholes 1997, 17)**

As a substantial character in the organization's external environment, i.e. value- and operating environment, is various stakeholders as mentioned above, but also competitors and the competitive situation. Organization's strategic position comes concrete with relation to its competitors. Behind this situation, there are modifications related to competitors, various stakeholders and the organization itself, which

increase instability in organization's value and operating environment. Against this context management's decision-making situation is concerning the strategic position. (Kyläkoski 1980, 32) The traditional view of corporate strategy analysis is based on analysing and seeking for new opportunities. Typically this approach is divided into to parts; one part concentrating on the environmental analysis, i.e. world outside the organization, and the second part analysing the organization itself. The environmental analysis identifies the effects of the environmental changes, i.e. the foreseeable opportunities and threats to organization and its operations. With a particular organization, the analysis tries to identify and evaluate the strengths and weaknesses embodied in resources and competences.

2.5 Analysis of strategic position

2.5.1 Structural analysis of industries

The company's strategic position emphasizes how the company is situated in its value- and operating environment, and how its current strategy is coming true. Also, the most crucial part in formulating competitive strategy is relating the company to its environment. While the surrounding environment is broad, the key aspect is in the industry, or in the business environment. The external factors usually affect all organizations within the industry, so the key is to investigate differing abilities of organizations in order to deal with these forces. (Porter 1980, 3)

According to Porter (1980), competition in the industry basically arises from its underlying economic structure. Porter defined five competitive forces, which influence the state of the competition: the threat of new entrants, the threat of substitutes, the bargaining power of buyers, the bargaining power of suppliers and the rivalry among the existing competitors, as presented in Figure 2.4. This are widely known as Porter's five forces - theory. The overall strengths of these forces determine the ultimate profit potential in the industry. The profitability is influenced by two factors. First, the intensity of competition determines industry's profit potential. This

can manifest itself in two forms: price competition and market share competition. Second, the bargaining power of both buyers and suppliers affects the actual profits levels, where profit potential is measured in terms of *return on investment.*

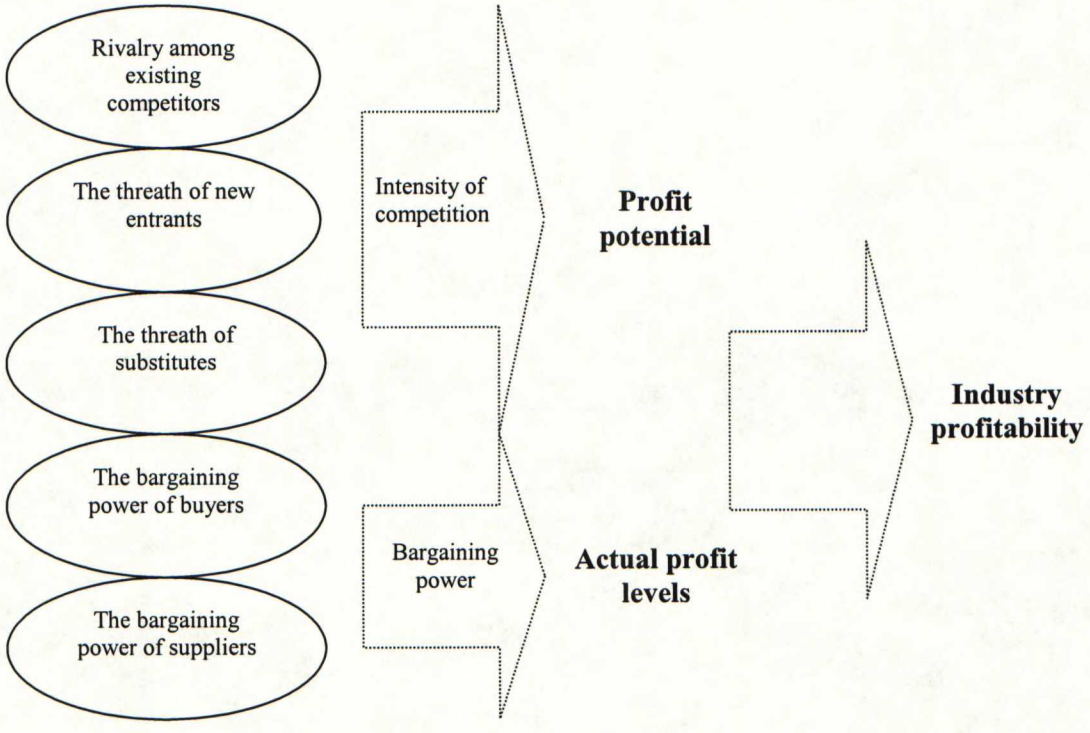

Figure 2.4 Industry structure and profitability (based on Palepu, 1996, 2.2; Porter, 1985,5)

The company's profit potential is determined by three strategic choices: 1) industry choice, 2) competitive strategy and 3) corporate strategy. Industry profitability is not the only function of product or whether it embodies high technology, but also of industry structure. Porter's five competitive forces determine profitability because these forces influence the prices, costs and rate of return on investment. The strength of these forces is a function of industry structure, or the underlying economic and technical characteristics of the industry. The industry trends that are most important for strategy are those affecting industry structure. Thus, it is worth noticing, that industry analysis should focus, not only on the past present structures, but also on

trends and future, to asses the future opportunities and threats in the industry. (Porter 1985, 7)

Competition in the industry constantly reduces the rate of return on investment towards the competitive floor rate of return, i.e. free market level, which can be approximated by yield on long-term government bonds adjusted upward by the risk of capital loss. Investors will not tolerate this, because they will get better yields from elsewhere. As a consequence, firms earning less than this return will eventually go of business. The higher the rates of return are the more they stimulate the inflow of capital into the industry either through new entries or through additional investment by existing competitors. The five competitive forces determine the degree to which this inflow of investments occurs in the industry and drives the return to free market level. This affects the ability of firms to sustain above-average returns, and ultimately to survive. (Porter 1980, 5-6)

The threat of new entrants depends on the barriers to entry that are present, coupled with the reactions from existing competitors. There are seven major sources of barriers to entry: economies of scale, product differentiation, capital requirements, switching costs, access to distribution channels, cost disadvantages independent of scale, and government policy. Also, the potential entrant's expectations concerning the reaction of existing competitors will influence the threat of new entrants, and ultimately the entry may be deterred. (Porter 1980, 14)

The threat of substitutes comes from industries producing substitute products. There can be actual or potential substitution of one product for another. Identifying substitute products involves in searching for products that can perform the same function as the product of the industry. Sometimes this can lead the analysis into seemingly far from the industry. (Porter 1980, 23) The substitutes limit the potential return of the industry by setting the price limit that the companies can profitably charge. The lower the prices of the substitutes, the lower are the profits in the industry. (Lahti, 1988, 120)

The bargaining power of buyers means that the buyers compete with the industry by forcing prices down and gaining for higher quality. They are playing competitors against each other and therefore, lowering industry profitability. (Porter 1980, 24). Buyer power is likely to be high when some of the following conditions prevail: (Johnson & Scholes 1997, 117)

- The buyers are concentrated or volume purchases of buyer are high. If a large portion of sales is purchased by some buyer, this raises buyer's importance to the company and its results.
- The supplying industry comprises a large number of small operators
- There are alternative sources of supply, especially when the products are standard or undifferentiated, or the product is unimportant to the quality of the buyer's products or services.
- The component or material cost is a high percentage of total cost, i.e. buyer earns low profits, which create incentive to lower purchasing costs.
- The cost of switching a supplier is low or involves little risk, or conversely, the seller faces switching costs.
- There is a great threat of backward integration by the buyer, if satisfactory prices or quality from suppliers cannot be obtained.

The bargaining power of suppliers is linked to the previous one. Suppliers can exert their power by threatening to raise prices or reduce the quality and thereby decrease industry profitability. The conditions making suppliers powerful tend to mirror those making buyers powerful. (Porter 1980, 27). Supplier power is likely to be high when: (Johson & Scholes 1997, 117)

- Supply is dominated by a few companies.
- The switching costs from one supplier to another are high, or supplier's products are differentiated.

- The brand of the supplier is powerful, or the industry is not an important customer of the supplier.
- There is the possibility of the supplier integrating forwards if it does not obtain the prices, and hence the margins, it seeks.
- The supplier's customers are highly fragmented.

The rivalry among existing competitors also affects the profitability of the industry. Rivalry occurs because one or more competitors either feels the pressure or sees the opportunity to improve position. Usually competitive moves by one company have considerable effects on its competitors and thus may entail retaliation, i.e. companies are mutually dependent. It is important to identify, whether the competition is intensifying or decreasing. There are several interacting factors which are likely to increase the intensity of rivalry: numerous or equally balanced competitors, slow industry growth, high fixed or storage costs, low differentiation level, overcapacity, diverse competitors, high strategic stakes, and high exit barriers. Some forms of competition, especially price competition, are highly unstable and quite likely to leave the entire industry worse off from the standpoint of profitability. Rivals react quickly and easily to price cuts, and once matched they lower revenues for all companies unless industry price elasticity of demand is high enough. (Porter 1980, 17-21)

2.5.2 Structural analysis and competitive strategy

After the forces influencing competition in the industry and their underlying causes have been diagnosed, the company is in a position to identify its strengths and weaknesses relative to the industry. An effective competitive strategy takes offensive or defensive action in order to create a *defendable* position against the five competitive forces. This involves various possible approaches: (Porter 1980, 29-30)

- positioning the company so that its capabilities provide the best defence against the existing array of competitive forces;

- influencing the balance of forces through strategic moves, thereby improving the company's relative position; or
- anticipating shifts in the factors underlying the forces and responding to them, thereby exploiting change by choosing strategy appropriate to the new competitive balance before rivals recognize it.

2.5.3 Competitive strategies

Competitive strategy is a search for a favourable competitive position in the industry, the fundamental arena in which competition occurs. The competitive strategy aims to establish a profitable and sustainable position against the forces that determine industry competition. Positioning determines whether a firm's profitability is above or below the industry average. A firm that can position itself well may earn high rates of return even though industry structure is unfavourable and the average profitability of the industry is modest. In order to achieve the competitive strategic position the management needs to choose an appropriate strategy. By this we mean taking offensive or defensive actions to create defendable position in the industry, to cope successfully with the five competitive forces and thereby yield a superior return on investment for the firm. All the different strategies aim for the same ultimate goal: creating sustainable competitive advantage and survival. Depending on the current strategic position, products and industry attractiveness, the organization can either choose to cut-down the market share, expand it, or keep it unchanged. If the company is no longer competitive or the markets do not remain attractive, the company may choose to retreat from the markets. (Porter, 1985, 4-11; see also Wikström 2002; Baker, 1985; Ansoff, 1965)

The fundamental basis of above-average performance in the long-run is sustainable competitive advantage. For creating defendable position in the long run and outperforming competitors in the industry, Porter (1980, 1985) has identified three internally consistent generic strategies for achieving above-average performance in the industry: cost leadership, differentiation, and focus. The focus strategy has two

variants, cost focus and differentiation focus. The generic strategies are shown in Figure 2.5. These strategies are based on the company's environment, strategic position, and the analysis on the five competitive forces. Depending on the organization's strengths with the products, and of the objectives to operate either industry-widely or in a narrow segment, it chooses its generic strategy.

Each of these strategies involves a fundamentally different route to competitive advantage. The cost leadership and differentiation strategies seek competitive advantage in a broad range of industry segments, while focus strategies aim at cost advantage (cost focus) or differentiation (differentiation focus) in a narrow segment. The specific actions required to implement each generic strategy vary widely between different industries, as do the feasible strategies in a particular industry. (Porter 1985, 11)

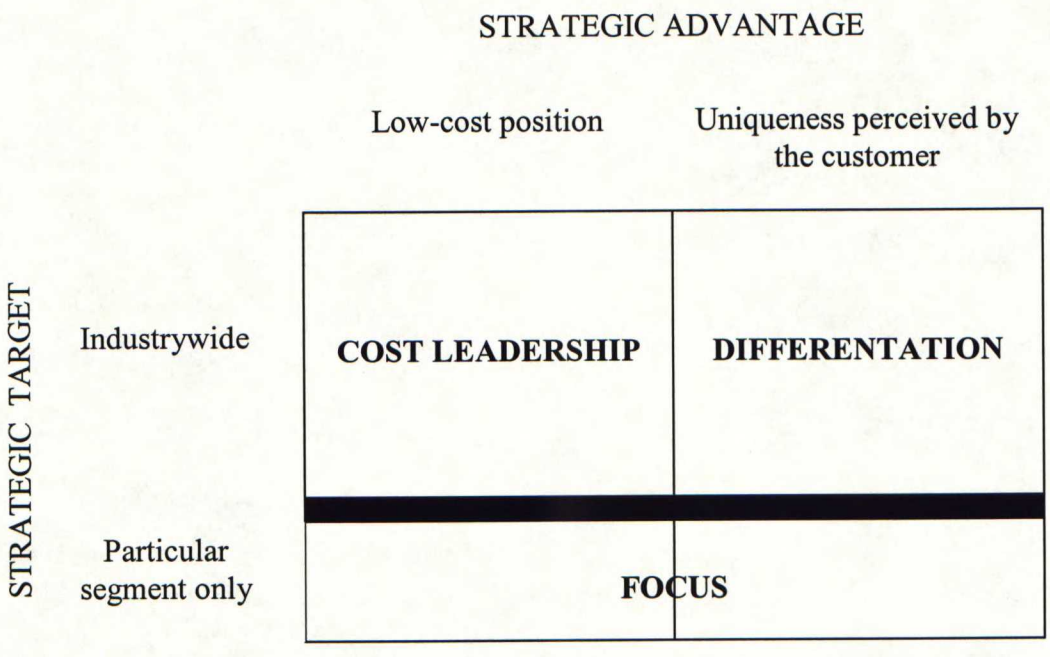

Figure 2.5 Generic competitive strategies (Porter 1985, 12)

Cost leadership is perhaps the clearest of the generic strategies. Here, the firm aims to become the low-cost producer in its industry. The firm has a broad scope of actions and serves many industry segments, and may even operate in related industries. The large scale of operations is often consequential to firm's cost advantage. The sources

of cost advantage vary and depend on the industry structure. They may include e.g. the pursuit of economies of scale, proprietary technology, and preferential access to raw materials. Low-cost strategy involves more than just going down the learning curve. A low-cost producer must find and exploit all sources of cost advantage. Low-cost producers typically sell a standard, or no-frills, product and place considerable emphasis on reaping scale or absolute cost advantages from all sources. If a firm can achieve and sustain overall cost leadership, then it will be an above-average performer in its industry provided it can command prices at or near the industry average. If the firm sells its products at average price, it will earn higher margin. Alternatively, if it decides to sell at above-average price, it seeks higher market share. In both situations a cost leader's low-cost position translates into higher returns. However, a cost leader cannot ignore the bases of differentiation. If the buyers do not perceive its products as comparable or acceptable, a cost leader will have to discount prices well below competitor's to gain sales. The strategic logic of cost leadership requires a firm to be *the* cost leader, not one of several firms vying for the same position. (Porter 1985, 12-13)

Achieving a low overall cost position often requires a high relative market share or other advantages, such as favourable access to raw materials etc. In turn, implementing the low-cost strategy may require heavy up-front capital investment in state-of-art technology, aggressive pricing, and start-up losses to build market share. High market share may in turn allow economies in purchasing which lower costs even further. Once achieved, the low-cost position provides high margins which can be reinvested in new technology and modern facilities in order to maintain cost leadership. Such reinvestment may well be a prerequisite to sustaining a low-cost position. (Porter 1980, 36)

Cost leadership imposes severe burdens on the firm to keep up its position, which means reinvesting in modern technology, ruthlessly scrapping obsolete assets, avoiding product line proliferation, and being alert for technological improvements. Cost declines with cumulative volume are by no means automatic, nor is reaping all

available economies of scale achievable without significant attention. Cost leadership is vulnerable to some risk, for example: (Porter 1980, 45)

- technological change that nullifies past investments or learning;
- low-cost learning by industry newcomers or followers, through imitation or through their ability to invest in state-of-art facilities;
- inability to see required product or marketing change because of the attention placed on cost;
- inflation in costs that narrow the firm's ability to maintain enough of a price differential to offset competitor's brand images or other approaches to differentiation.

The second generic strategy is differentiation. In a differentiation strategy, a firm seeks to be unique in its industry along some dimensions that are widely valued by buyers. It selects one or more features that several buyers in an industry perceive as important, and uniquely positions itself to meet those needs. It is rewarded for this uniqueness, differentiation, with a premium price. The means for differentiation are peculiar to every industry. The differentiation can be based on the product itself, the delivery system by which it is sold, the marketing approach, and the broad range of other factors. A firm that can achieve and sustain differentiation will be an above-average performer in its industry if its price premium exceeds the extra costs incurred in being unique. A differentiator, therefore, must always seek ways of differentiating that led to a price premium greater than the cost of differentiating. A differentiator thus aims at cost parity or proximity relative to its competitors, reducing cost in all areas that do not affect differentiation. In contrast to cost leadership, however, there can be more than just one successful differentiation strategy in an industry if there are a number of features that are widely valued by buyers. (Porter 1985, 14)

Differentiation provides insulation against competitive rivalry because of brand loyalty by customers and resulting lower sensitivity to price. It also increases margins, which avoids the need for a low-cost position. Achieving differentiation

may sometimes preclude gaining a high market share. It often requires a perception of exclusivity, which is incompatible with high market share. More commonly, however, achieving differentiation will imply a trade-off with cost position if the activities required in creating it are inherently costly, such as extensive research, product design, high quality materials, or intensive customer support. (Porter 1980, 38)

Differentiation also involves a series of risks: (Porter 1980, 46)

- the cost differential between low-cost competitors and the differentiated firm becomes too great for differentiation to hold brand loyalty. Buyers thus sacrifice some of the features, services, or image possessed by the differentiated firm for large cost savings;
- buyer's need for the differentiating factors falls. This can occur as buyers become more sophisticated;
- imitation narrows perceived differentiation, a common occurrence as industries mature.

The third generic strategy is focus. It is quite different from the previous ones because it rests on the choice of a narrow competitive scope within the industry. The focuser selects a target segment or segments in the industry and tailors its strategy to serve them to the exclusion of others. By optimizing its strategy for the target segment, the focuser seeks to achieve a competitive advantage in its target segments even though it does not posse a competitive advantage overall. The focus strategy has two variants. In *cost focus* a firm seeks a cost advantage in its target segment, while in *differentiation focus* a firm seeks differentiation in its target segments. Both variants of the focus strategy rest on differences between a focuser's target segments and other segments in the industry. Cost focus exploits differences in cost behaviour in some segments, while differentiation focus exploits the special needs of buyers in certain segments. The focuser can thus achieve competitive advantage by dedicating itself to the segments exclusively. Breadth of target is clearly a matter of degree, but the

essence of focus is the exploitation of a narrow target's differences from the balance of the industry. Narrow focus in and of itself is not sufficient for above-average performance. (Porter 1985, 15) The focus strategy always implies some limitations on the overall market share achievable. Focus necessarily involves a trade-off between profitability and sales volume. Like the differentiate strategy, it may or may not involve a trade-off with overall cost position. (Porter 1980, 40)

If a firm can achieve sustainable cost leadership (cost focus) or differentiation (differentiation focus) in its segments and these segments are structurally attractive, the focuser will be an above-average performer in its industry. Segments' structural attractiveness is a necessary condition because some segments in an industry are much less profitable than others. There is often room for several sustainable focus strategies in an industry, provided that focusers choose different target segments. (Porter 1985, 16) Focus strategy involves yet another set of risks: (Porter 1980, 46)

- the cost differential between broad-range competitors and the focused firm widens to eliminate the cost advantages of serving a narrow target or to offset the differentiation achieved by focus;
- the differences in desired products or services between the strategic target and the market as a whole narrows;
- competitors find submarkets *within* the strategic target and outfocus the focuser.

2.5.4 Structural analysis and industry definition

A great deal of attention has been directed at defining the relevant industry as a crucial step in competitive strategy formulation. Structural analysis, by focusing broadly on competition well beyond existing rivals, should reduce the need for debates on where to draw industry boundaries. Any definition of an industry is essentially a choice of where to draw the line between established competitors and substitute products, between existing firms and potential entrants, and between

existing firms and suppliers and buyers. If these broad sources of competition are recognized, however, and their relative impact assessed, then where the lines are actually drawn becomes more or less irrelevant to strategy formulation. Latent sources of competition will not be overlooked, nor will key dimensions of competition. Definition of an industry is not the same as definition of where the firm wants to compete, i.e. definition of its *business*. Just because the industry is defined broadly, does not mean that the firm can or should compete broadly. Also, there may be substantial benefits to compete in a group of related industries. (Porter, 1980, 32-33) However, it is worth noticing that in any particular industry not all of the five forces will be equally important and the particular structural factors that are important will differ. Every industry is unique and has its own unique structure.

3 INDUSTRY ANALYSIS AS A PART OF STRATEGIC MANAGEMENT

3.1 A need for industry analysis

In a free market each firm tries to be above-average performer in its industry. To achieve this target an organization must know how it stands against each of its competitors. The term competition often defies the true definition, because the view of competition held by different groups varies. From the business' perspective, competition refers to rivalry among organizations operating in the same markets to fill the same customer's need. Most firms define competition in crude simplistic and unrealistic terms. Some firms fail to recognize the true sources of competition, while others underestimate the capabilities and reactions of their competitors. In the stable business climate this shallow outlook on competition may be sufficient, but in the current turbulent environment, the strategies must be competitively oriented. (Jain, 1985, 149-153)

An important factor affecting the intensity of rivalry the firm faces is the growth it reaches for. If the firm aims to grow at a rate higher or similar to the market growth rate, it is likely to meet competitors that aim to attain the organization's current customers. (Malmberg & Ruuti, 1988, 45) Although many writers have acknowledged the importance of industry analysis and competitor analysis, it has long been recognized that less effort is typically put into detailed and formal analysis of competitors than is the case, for example, with customers and their buying patterns (Wilson, 1994, 24).

Typically, while analysing the competition, emphasis is placed on price, product quality, delivery time, and other marketing variables. For the other purposes, e.g. strategy development; one needs to go beyond these marketing tactics employed by a competitor. Simply knowing that a competitor has been lowering prices, for example, is not sufficient. Over and above that, the management needs to know how much

flexibility the competitor has in further reducing the price. (Jain, 1985, 149) Implicit here is the need for information about, e.g. the competitors return on invested capital, profitability ratios, liquidity ratios, and equity ratios.

When analysing the competitors and industry, the first step is usually to identify them, i.e. which competitors are going after the same market segments and with what strategies. Next, the management needs to find out, how the firm is operating. Typically, organizations have centralized the gathering of competitor information in one department and the information is then delivered to all the parties needing it. This is positive, of course, but seldom provides sufficient information for a strategic decision making. Many informal and ad hoc sources of information like trade sources, customers etc. are extremely important as well. The formally reported information usually concentrates on past and present, but the strategic focus is in the future. (Kydd, 1996, 12-14)

The industry analysis acts as starting point for the competitor analysis as it gives the management a perspective of the whole situation. Based on it the management should have an understanding of the critical success factors of the industry and identify all the key competitors. The most important strategic competitors are defined. Then the analysis moves on to conduct a special competitor analysis providing the management with a clear picture of each competitor's characteristics, strengths, weaknesses, and their value chains. Based on the analyses the own company will be benchmarked against the selected competitors. The information needed to conduct thorough a competitor analysis is various and comes multiple different sources. Typically, it is acquired through traditional desk research, using databases and information inside the company as well as by conducting market researches. (Wikström, 2002, 51; see also Hussey, 1999)

Industry analysis and competitor analysis should deliver some specific advantages to the way strategic issues are considered. In order to achieve this, there is a need for up-to-date information that can be communicated and understood by those who are

expected to use it. There are usually several requirements from competitor analysis. At least following are suggested: (Hussey, 1999, 96)

1. *On-going knowledge of competitors.* This ensures that the organization knows what the competitors are doing, and what they might be considering doing that will affect it. Also, the organization needs to estimate how the things it is doing will affect the competitors and what will their reactions be. On-going knowledge of competitors calls for information that is kept up to date, and which is always immediately accessible.

2. *Special studies.* Every organization faces the situation where it needs to prepare a special statement on a competitor for a special purpose. This might happen, for example, if a competitor is being considered as an acquisition candidate or as a partner in a strategic alliance. Another possibility is to get more detailed information about a query that arises from an action observed from the on-going monitoring. This requires that the competitor information is available and can be quickly identified and retrieved. It may also require a willingness to commit resources to special surveys and investigations, and the competence to undertake or commission these.

3. *Performance comparison.* Competitor information can be used for performance comparison across as many parameters as possible. The aim is to achieve better key parameters than competitors have.

Industry analysis and competitor analysis have become increasingly important in the business arena since the early 1980s. Their intellectual origins can be attributed to Micheal Porter, who in 1980 introduced the five forces framework to analyze industries and sectors. With this work Porter pulled together and further developed much of the thinking about what influences the profitability of an organization in a competitive situation.

3.2 Industry structure analysis

The role that industry and competitor analysis play in the strategic management process is an important one. Any solid strategic plan begins with an in-depth look at the current environment around the organization. In order to understand the likely behaviour of a competitor, managers need to understand the strategic position of the organization. One element of this is the external business environment, including industry environment. Industry analysis deals with the organization's position within the structure of its industry.

Techniques of industry structure analysis will help the organization to obtain understanding of how the organization fits in its competitive arena. In figure 3.2 is presented Hussey's (1999) approach for this problem. Hussey has developed this model based on Porter's five forces framework. It begins with the industry analysis, or mapping approach. This helps to understanding of the competitive arena, and the relative positions of the key competitors. The second stage profiles major competitors and the second contrasts the segmentation approaches of each significant competitor. The next one, building competitive advantage, is the thinking and decision stage from which strategic actions should emanate. Finally, building competitive advantage is the thinking and decision stage which should lay foundation for strategic actions. (Hussey 1999, 61-62)

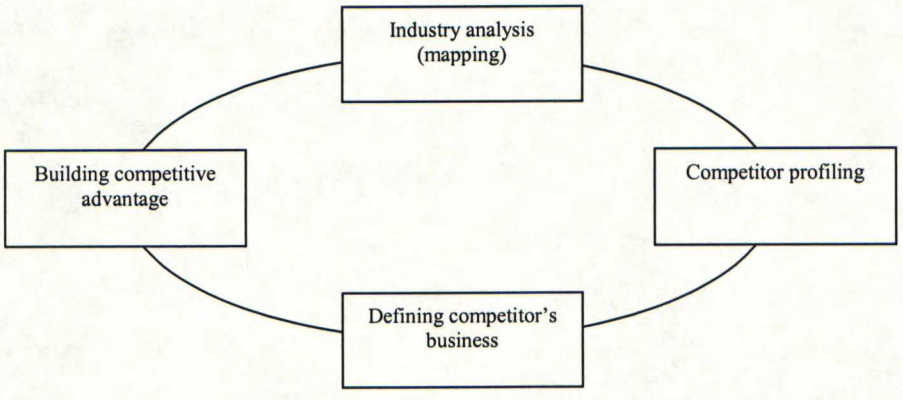

Figure 3.1 Hussey's approach to industry structure analysis (Hussey 1999,)

The first step is to understand the competitive arena of a certain industry, and the relative positions of the key competitors. This provides an understanding of the impact of value- and macro environment, e.g. political, economical, social, technological, environmental and legal forces, of the industry.

Competitors can be profiled by investigating their activity in the following areas: financial result, product analysis, marketing and sales activity, sources of competitive advantage, scope of international operations, apparent strategy, organization philosophy, personnel policies, and, strength and weaknesses. Competitor profiling provides a way of looking at competitors. This process increases understanding of the competitor, focuses attention on the appropriate issues and provides a format which eases internal communication.

Hussey used the approach by Abel (1980) to define a business in terms of different dimensions, and found it useful to use matrix diagrams to define both the organization and the competitors' business. In the simplest, this could be a matrix showing customer needs against customer groups. However, many more combinations are possible. (Hussey 1999, 81)

Building competitive advantage requires much from the management to use the various analytical steps. This is the point where the creative elements of strategy are needed. Following three options will help to understand the analysis: (Hussey, 1999, 81)

1. Scenario building is used for competitor profiling but may also be used to investigate other key organizations, such as major buyers, suppliers or other organizations influencing the buyer. This profile helps to assess the probability of different strategic moves made by the various actors, and the likely reactions in the industry.

2. Role playing is used within the framework of the industry map. By role-playing competitors, the management considers likely strategic moves from the competitors, and reactions of other competitors to these moves, and end up to a detailed consideration of competitive strategy. One of the advantages of this approach and the previous one is that both explore the dynamic nature of the competitive situation.

3. Changing the rules. The industry map reveals a certain industry structure, but this is not constant. A winning strategy may be to gain competitive advantage by trying to influence, and ultimately change the structure. This can be done either by changing the activity within the organization or changing the structure of the industry.

The scope of this study is on the first part of Hussey's framework, i.e. the study examines certain industry and its performance. The analysis is done primarily on financial basis, and by this it tries to enhance the understanding concerning the certain industry environment.

3.3 Strategy analysis as a part of industry analysis

The performance of an organization is determined by its economics. To analyze this performance, it is essential to have a comprehensive understanding of business environment and operating environment. With strategic management, we try to find answers to questions like: What is the firm's mission and vision? What are the firm's goals and targets? How the firm aims to be profitable? How will the firm finance its operations? How does the firm aim to create value to its stakeholders?

Mission statement identifies the scope of a firm's operations in product and market terms. A clear mission statement describes the values and priorities of an organization. Developing a business mission compels strategists to think about the

nature and scope of present operations and to assess potential attractiveness of future market and activities. A mission statement broadly charts the future direction of an organization.

Whereas the mission statement answers the question "What is our business?" the vision statement answers the question "What do we want to become?" Objectives, goals and targets, can be defined as specific results that an organization seeks to achieve in pursuing its basic mission. Objectives are essential for organizational success because they provide direction, aid in evaluation, create synergy, reveal priorities, allow coordination, and provide a basis for effective planning, organizing, motivating, and controlling activities. Objectives should be challenging, measurable, consistent, reasonable, and clear. (David, 1997, 10).

From the financial point of view, a firm's primary goal is to create and maximize shareholder value. The value of a firm is determined by the three main factors: expected profitability, growth, and risk (Brealey & Myers, 2000, 549-550). The firm creates value when its return on invested capital exceeds the cost of capital. The primary mechanism for a firm to create value is by increasing and / or maintaining overall profitability exceeding the cost of capital. This is clear because the profitability metrics show the current state and the on-going trend. The secondary target, the growth, is a bit more complicated. Growth is said to create value only if the profits from investments related to growth and expansion goals exceed the cost of capital. However, the cash inflows from this kind of investments will be generated in the future and will be affected by several risk factors.

When the firm generates returns in excess of the cost of invested capital, it is said have competitive advantage. According to Porter (1980, 1985) a firm can create competitive advantage by making superior strategic choices. Strategic choices have impact on firm's profitability, efficiency, asset structure, financial structure, and growth, i.e. firm's return. Here, it is worth noticing the difference between *comparative advantage* and *competitive advantage*. Comparative advantage exists

when a firm performs better than its peer-group but it does not necessarily mean that it has competitive advantage. In some cases, all the firms can have competitive advantage at the same time, or none of them have it.

Enhanced competition and competitive forces usually drive competitive advantage away from any industry forcing the profitability towards the cost of capital. The overall strengths of these forces determine the ultimate profit potential in the industry. The profitability is influenced by two factors. First, the intensity of competition determines industry's profit potential. This can manifest itself in two forms: price competition and market share competition. Second, the bargaining power of both buyers and suppliers affects the actual profits levels, where profit potential is measured in terms of return on investment.

Firms usually seek to earn higher returns, but they are constrained by competitive forces. In an industrie with low degree of competition firms tend to reach higher profitability ratios whereas firms operating in a competitive industry are not likely to earn profits exceeding the cost of capital. By further developing the formula of expected return, we can see that it is a function of profitability, efficiency, and leverage (see chapter 3.5). Thus, firms usually face a trade-off between these factors. In general firms with high profitability have low efficiency and respectively high asset turnover may compensate for lower profitability. Capital-intensive industries with high fixed costs and heavy balance sheet are likely to have higher profit margins and low asset turnover.

To compete successfully and to gain competitive advantage, a firm need to create a competitive position through its strategic position. Competitive strategy is the search for a favourable competitive position in the industry, the fundamental arena in which competition occurs. It aims to establish a profitable and sustainable position against the forces that determine industry competition. Organization's choice of competitive strategy influences its relative profitability through its ability to charge higher price premiums and, hence, ability to earn economic profits within the industry.

Competitive position can also assist firm to achieve higher market share and, therefore, higher growth. The fundamental basis of above-average performance in the long-run is sustainable competitive advantage. For creating defendable position in the long run and outperforming competitors in the industry, Porter (1980, 1985) has identified three internally consistent generic strategies for achieving above-average performance in the industry: cost leadership, differentiation, and focus. The focus strategy has two variants, cost focus and differentiation focus. These strategies are based on the company's environment, strategic position, and the analysis on the five competitive forces. Depending on the company's strengths with the products, and of the objectives to operate either industry-widely or in a narrow segment, it chooses its generic strategy.

The purpose of business strategy analysis is to identify key profit drivers and business risks, and to assess the organization's profit potential both at qualitative and quantitative level. Business strategy analysis involves analyzing a firm's industry and its strategy to create a sustainable competitive advantage. Assessment of a firm's competitive strategy facilitates evaluating whether current profitability is sustainable. Business analysis also enables to make sound assumptions in forecasting a firm's future performance. (Palepu et.al. 1996, 1.6-1.7)

3.4 Financial analysis as a part of industry analysis

Financial statements and financial ratios reflect a firm's strategy and success relative to its competitors. Firms choosing differentiation strategy to obtain market power and to charge higher price premiums are likely to have higher profit margins and potentially low asset turnover. This is a consequence of these firms are able to charge premium due to differentiation. However, differentiation is costly and requires investments in R&D, engineering skills, and marketing capabilities, which in turn potentially reduces asset turnover. On the other hand, firms utilizing cost leadership strategy to enable high volumes at low price are likely to have low profit margins and high asset turnover. They make investments in efficient scale plants, focus on product

designs that reduce manufacturing costs, minimize overhead costs, make little investment in R&D, and do not serve marginal customers. It must be pointed out, that the key questions is, how the competitive strategy is ultimately implemented. Competitors can earn same return levels within same industry although they had adopted different strategies. However, it is clear to think that best firms outperform their competitors both on profitability and efficiency.

A firm creates value when its return on its capital exceeds the cost of capital. While a firm's cost of capital is determined by the capital markets, its profit potential is determined by its own strategic choices: (1) the choice of an industry or a set of industries in which the firm operates (industry choice), and (2) the manner in which the firm intends to compete with other firms in its chosen industry (competitive positioning).

Firms' profitability and growth are influenced by its product market and financial market strategies. The product market strategies are implemented through the firms' operating policies and investment strategies. Financial market strategies are implemented through financing and dividend policies. This study will compare financial ratios for an industry sectors over three years, or 13 quarters (a time-series comparison), and ratios between the three sectors in the industry (cross-sectional comparison). Ratio analysis mathematically relates financial statement items in a meaningful manner. Financial ratios are usually expressed in percent or times. They can be computed from any pair of numbers. Given the large quantity of variables in financial statements, a very long list of meaningful ratios can be derived. A standard list of ratios or standard computation of them does not exist, and for most ratios, there are no absolute benchmarks.

A good starting point for the financial analysis is process the financial statement items in percentages. In income statement items are shown as a percentage of sales. Balance sheet structures each items as a percentage of total assets. The use of this approach makes comparison of firms of different sizes much more meaningful by

facilitating comparison of various income statement and balance sheet items relative to a common denominator. The analysis can be either vertical or horizontal. The vertical analysis compares each amount with a base amount selected from the same period. This can provide useful insights about the profitability and cost structure. The horizontal analysis compares each amount with a base amount for a selected base year. In general, this provides information about growth and changes in the amount of and structure of assets, liabilities, and equity. (Gibson 1994, 176-177)

3.5 A framework for industry analysis

This study examines performance of three sectors within internet security industry. The analysis will include both strategic and financial point of view. This study covers 23 firms operating in one or more sectors in internet security industry. These firms are divided into the three sectors based on their operations. A good starting point for analysing firms' and industry's performance is the return on investment (ROI), defined as:

$$ROI = \frac{Income}{Investment}$$

Return on investment is the most popular approach to incorporating the investment base into a performance measure. ROI has conceptual appeal because it blends all the ingredients of profitability, i.e. revenues, costs, and investment, into a single percentage. It can be compared with the rate of return on opportunities elsewhere, inside or outside the firm.

ROI is also called the accounting rate of return or the accrual accounting rate of return (Horngren et al. 2000, 760). Usually the term ROI is used when evaluating the performance of a division or subunit, and accrual accounting rate of return when evaluating a project. Companies vary in the way they define both the numerator (income) and the denominator (investment) of the ROI calculation. For instance,

some firms use operating income for the numerator, while others use net income. Some firms use total assets in the denominator and others use total assets minus current liabilities. (Horngren et al. 2000, 824) There are also several commonly used variations from ROI, for example ROE (return on equity), ROA (return on assets), ROCE (return on common equity) and ROIC (return on invested capital), which are maybe the most widely used in performance measurement. The basic idea in these calculations is same, and the differences can be found in definition of numerator and denominator. (Brealey & Myers 2000, 828; Gibson 1996, 379-387) Return on investment is a comprehensive indicator of a firm's performance because it provides an indication of how well managers are employing the funds invested to generate returns. In the long run firms that are expected to generate ROI in excess of the cost of capital are creating value to the stakeholders. A comparison of ROI with the cost of capital is useful not only for contemplating the value of the firm, but also in considering the path of future profitability. The generation of consistent supernormal profitability will, absent significant barriers to entry, attract competition. (Palepu, 1996, 4.1-4.3)

ROI provides more insight into performance when it is divided into the following components:

$$ROI = \frac{Income}{Sales} * \frac{Sales}{Assets} * \frac{Assets}{Investment}$$

$$= Profitablity * Efficiency * Leverage$$

This is useful approach in linking various financial ratios and the aspects of corporate policies they measure. Firm's ROI is affected by three factors: return on sales, investment turnover, and financial leverage. Based on this, further decomposition of ROI leads to three factors: (i) profitability (or net profit margin), (ii) efficiency (total asset turnover), and (iii) leverage. (Horngren et al. 2000, 824)

This decomposition gives us an approach, which can be utilized in the evaluation of successfulness of the firm's strategy and its implementation by management. By using this analysis, the impact of (i) operating management on profitability, (ii) investment management on efficiency, and (iii) financial management on financial leverage can be evaluated.

In figure 3.2 is showed structure of the analysis. We will monitor industry performance in terms of profitability, efficiency and financial leverage, and discuss the reasons affecting these factors.

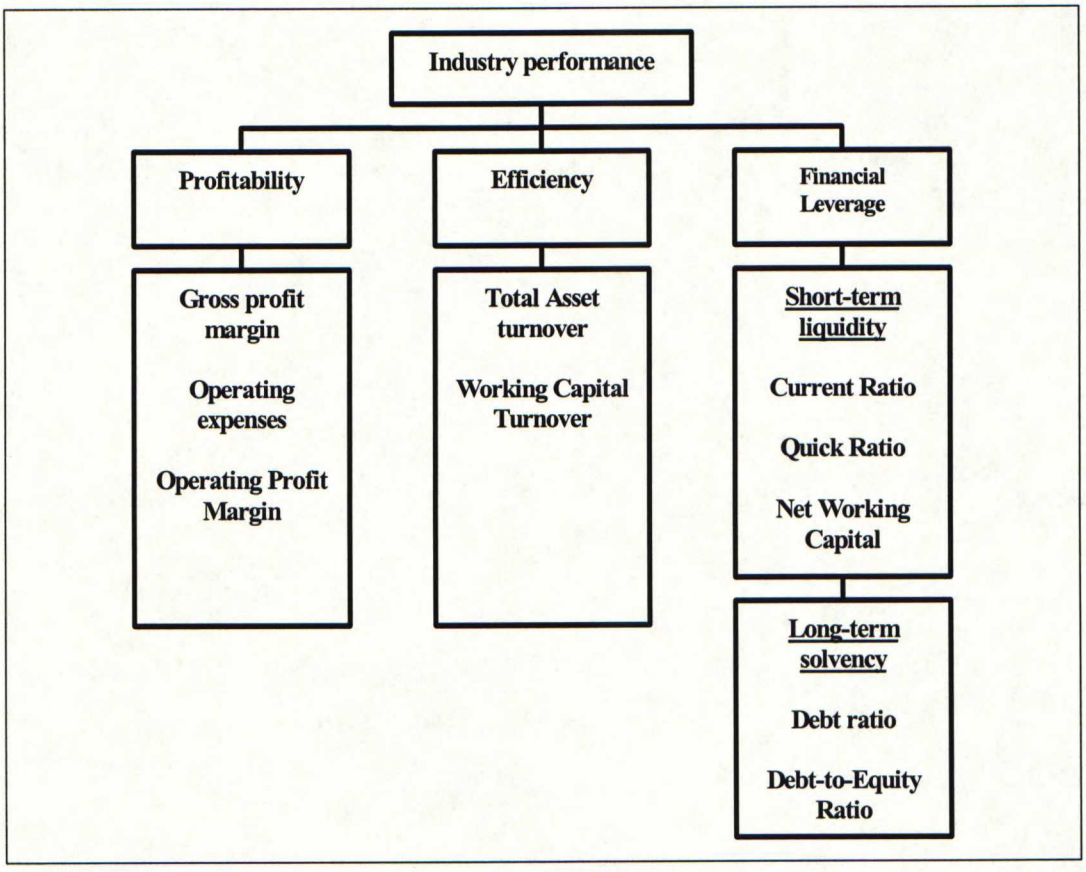

Figure 3.2 The structure of the analysis

4 INDUSTRY ANALYSIS IN INTERNET SECURITY INDUSTRY

4.1 Definition of internet security industry

Protection of corporate digital assets has become a priority as companies extend network access to their employees, partners and customers. Maintaining the integrity and security of a company's information and protecting its network from unauthorized or fraudulent exploitation requires the installation of dedicated comprehensive appliance-based security solutions as well as the implementation of increasingly effective security policies. While companies continue to deploy various security solutions including firewalls, they are also focusing on other essential security applications such as vulnerability assessment, intrusion detection, anti-virus and content security. It is clear that the whole internet security field is vast. However, in this study the internet security industry is divided only in three sectors: firewall and virtual private network (FW/VPN), secure content management (SCM), and intrusion detection systems (IDS), which are the three main segments in the internet security industry.

4.1.1 Firewalls and VPNs: market definition

The enterprise firewall and virtual private networks (FW/VPN) markets are defined by hardware and software products deployed at the enterprise or service provider premise that provide security and virtual remote access for the corporate LAN (local area network). Enterprise VPNs enable users to virtually access a local are network from a remote location or provide secure site-to-site connections across a public network. Enterprise firewalls provide perimeter an interdepartmental security and resource control between the public internet, the LAN, and between multiple departments on the LAN. As the VPN and firewall markets have evolved, these two technologies have been inseparably combined. While some vendors offer purpose-built solutions solely for the VPN market, most now offer integrated firewalling as an

option or standard feature. Firewall and VPN customers include both enterprises deploying home grown solutions and service providers that resell firewall and VPN hardware as part of a customer premise-based managed service. The increased need for perimeter and interdepartmental security is driving growth in the firewall and VPN markets at a faster rate than other enterprise firewall equations as tools to detect and prevent a wider range of network attacks.

We have used Infonetics Research's list of the main operators in this sector to choose the firms. Firewall/VPN vendors covered in this study represent over 80% of the FW/VPN market size. These firms are: (in alphabetical order)

Avaya
Checkpoint
Cisco
Intrusion Inc.
Lucent
Netscreen
Nortel
Sonicwall
Watchguard

4.1.2 Secure content management: market definition

Secure content management (SCM) is an emerging market that reflects corporate customer's need for policy-based Internet management tool that addresses virus protection, Web content, email scanning, and downloadable applications execution. Secure content management technologies cover three specific product areas: antivirus software (AV), Internet access control and employee Internet management (IAC/EIM), and email scanning. So called blended threats, i.e. complex viruses or worm programs that target multiple weaknesses in computer networks and are

capable of doing damage in multiple ways, have become increasingly more common. Unlike traditional viruses, which rely on the user to spread the infected files, blended threats are automated and are always scanning the internet and local networks for vulnerabilities and other computers to infect, i.e. they spread without user interaction.

Since blended threats are designed to get past point-solution security systems, there will be a strong push toward a layered security approach that will be better able to combat blended threats. The layered security approach will combine solutions such as desktop antivirus, server and gateway antivirus, content filtering, vulnerability management, intrusion detection, and firewalls.

We have used IDC market research firm's list of main firms in SCM sector. Worldwide Secure Content Management vendors covered in this study represent over 60% of the SCM market size. These firms are: (in alphabetical order)

Aladdin
Computer Associates
Elron
F-Secure
Network Associates
N2H2
Surfcontrol
Symantec
Tumbleweed
Websense

4.1.3 Intrusion Detection Systems: market definition

Intrusion detection (ID) and vulnerability assessment (VA) products are designed to monitor devices or networks and to react to malicious activity (ID) or to perform assessments to determine the configuration, structure, and attributes for a given device or network (VA). Both product types are used to strengthen networks, devices, and applications by either discovering ongoing malicious activity or providing a warning that there is a weakness that can be exploited by a hacker (i.e. vulnerability). These products are categorized as network based or host based.

In intrusion detection systems, a device or agent on a network or a system, respectively, will compare current activity with a list of signatures known to represent malicious activity, or it will use other methods such as protocol analysis or heuristics to discover unauthorized network activity. Surveillance is performed either in-line or passively. Some products can work with other security products, such as firewalls, to activate a preestablished automated response to policy-violating activities, while others have the ability to proactively prohibit malicious activity. The latter type falls into an emerging intrusion prevention segment.

The ID&VA market continues to gain traction as more enterprises adopt the technology. The products in this market are required elements of a complete layered defence. VA is used to find potential holes in security architecture. According to surveys, it plays a critical role in the deployment of additional security solutions. It is also important in refreshing the security posture of an organization. ID is used to monitor network traffic and, most recently, individual devices behind the firewall. Organizations are finding benefits in ID products for security and for network flow and monitoring. VA products are becoming prominent in allowing organizations to understand their exposure or risk posture towards attacks. The need for VA audits will grow in importance as increased government regulation requires firms to report on their security posture.

We have used IDC's list of the main operators in IDS market. Worldwide Intrusion Detection vendors covered in this study represent over 60% of the total IDS market size. These firms are: (in alphabetical order)

Bindview
Computer Associates
Enterasys
Harris STAT
Intrusion Inc.
Internet Security Systems (ISS)
Network Associates
Symantec

4.2 Assessment of profitability

This study uses operating profit margin instead of net profit margin employed in traditional ROI approaches. This is because the emphasis of this study is on firms' operations. Only the operating items are recognized from financial statements in the calculation of operating profit, i.e. operating expenses (also called OPEX) include research & development, sales & marketing, and administrative & general expenses only. No depreciation, amortization, or other non-operative costs are included. This is common procedure when the firms are reporting their Pro Forma results, putting emphasis on operating result. The aim is to examine firms operating performance, profitability and growth related to operations, and the financing risk during the period.

A firm's profit margin shows the profitability of the organization's operating activities. Further decomposition allows assessing the efficiency of the firm's operating management. A popular approach used in this analysis is to show all the line items in income statement as a percentage of sales. (Palepu 1996, 4.7)

Processing income statement items as a percentage of sales makes it possible to compare trends in income statement relationships over time for a sector, and trends across different sectors in an industry. By this can the answers be found to questions like (1) Does the sector's average profit margins reflect its competitive strategy, or what this strategy apparently is according to these margins? (2) Are the sector's margins changing, and if they are, why? (3) Is the sector on average managing its operating costs well and what are the factors driving these costs?

The following ratios are used in this study to analyse sectors' operating management, i.e. to measure management's ability to generate profits from sales and to control various costs (Gibson 1996, 382-390):

$$(1)\quad Gross\ Profit\ Margin = \frac{Sales - Cost\ of\ Sales}{Sales}$$

$$(2)\quad Operating\ Profit\ Margin = \frac{Sales - Cost\ of\ Sales - OPEX}{Sales}$$

Also operating expenses are analysed by using *R&D/Sales, S&M/Sales, A&G/Sales, and Total OPEX/Sales – ratios.*

Gross profit margin

The difference between a firm's sales (also called revenues) and cost of sales (or cost of goods sold, i.e. COGS) is gross profit. Gross profit margin indicates the extent to which revenues exceed direct costs associated with sales. Gross profit margin is influenced by two factors: (1) the price premium and (2) the efficiency of the firm's procurement and production process. The price premium a firm's products can command is influenced by the degree of competition and the extent to which its products are unique. A firm's cost of sales can be low when it can purchase its inputs

at a lower cost than competitors and/or run its production process efficiently. This is generally the case when a firm has a low-cost strategy. (Palepu, 1996, 4.8)

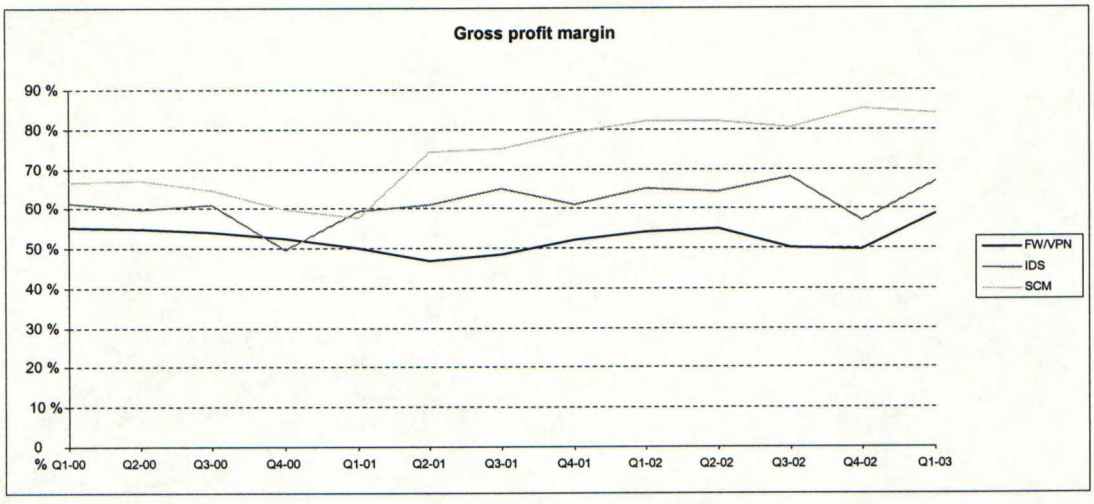

Figure 4.1 Gross profit margin

Within FW/VPN market, gross profit has stayed stable, varying between 47% and 58%. Checkpoint, Cisco, and Netscreen are the three players, which have managed to improve their margins, but neither in these is the change dramatic (see Appendix 1 for firm level information). In contrast, Sonicwall is the only firm which has faced a decrease in its gross margin.

Generally speaking FW/VPN market has the most stable gross profit margin within the internet security industry and it has not faced any significant changes. However, the average margin is clearly the lowest of these three markets. Because this is the biggest market segment in the internet security industry in terms of firms' sales, we can expect that FW/VPN market faces the highest degree of competition in the internet security industry. While the players are relatively large firms, having a strong bargaining power over their suppliers, a degree of competition reduces the price premium.

In the IDS markets the margin has stayed between ca. 60-70% during the period under review. The average level is ca. 60%. From the 8 biggest vendors in IDS

markets the following three; Entarasys, Harris, and Intrusion Inc, have significantly lower gross profit margin. However, there have not been any substantial changes in their margins either. Computer Associates and ISS are the only firms out of these 8 succeeded to raise their margin.

SCM market has had the highest gross profit margin during the period. After Q1 2001, every firm operating in SCM market has managed to improve its margin. As a result, within the internet security industry, firms in SCM market have managed to enhance their gross profit margin most of all.

Within IDS and SCM markets the rivalry is not as intense as in FW/VPN market. Both these segments are growing markets and while the firms are still relatively small, there are room for every competitor, and thus, competition does not decrease the price premium.

Operating expenses

Operating expenses are influenced by the activities needed to undertake to implement competitive strategy. Firms with differentiation strategies have to undertake specific activities to achieve differentiation. An organization competing on the basis of quality and rapid introduction of new products is likely to have higher research and development (R&D) costs relative to a firm competing purely on a cost basis. A firm that attempts to build a brand image, distributes its products through full-service retailers, and provides after-sales service is likely to have higher selling and administrative costs than a firm that sells through warehouse retailers or direct mail and does not provide much customer support. An organization's operating expenses are also influenced by the way it manages its overhead activities. The efficiency with which operating expenses are controlled is likely to be especially important for firms competing on the low-cost basis. (Palepu 1996, 4.9)

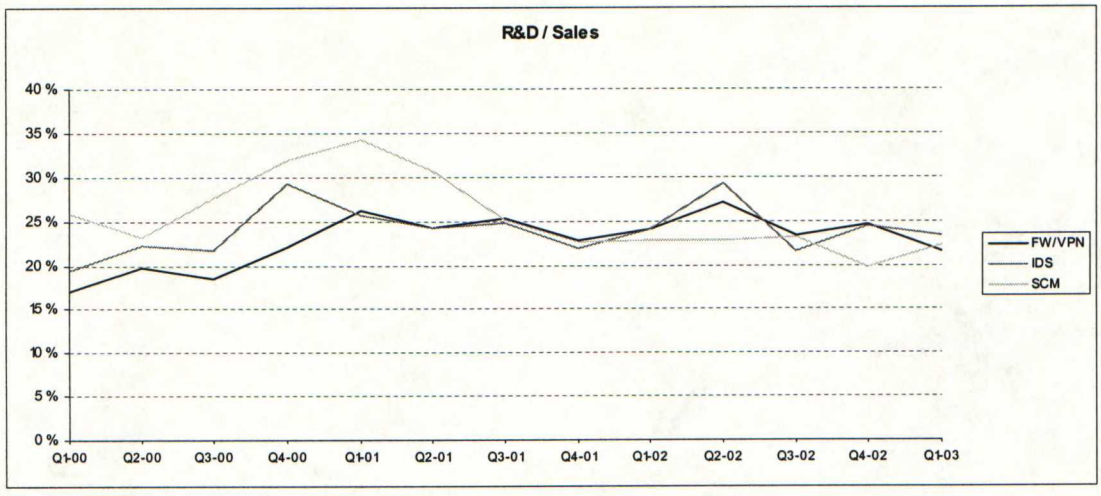

Figure 4.2 R&D costs in relation to sales

Towards the end of the review period R&D expenses have moved very close to each other in all three segments. The biggest change is that while in FW/VPN and IDS markets R&D/Sales has slightly increased, in SCM sector the trend has been going downwards. However, almost every firm has increased the absolute amount spent in R&D, so the decrease in SCM is mainly because of the increase in sales in this market. Altogether, R&D/Sales ratio is at quite similar level throughout the whole internet security industry.

The same can be seen both in S&M/Sales and A&G/Sales. These costs have stayed much more stable in FW/VPN and IDS sectors, and the gap between the three sectors has reduced. This insists that FW/VPN and IDS markets are at more mature stage, but that SCM market has faced the fastest growth during this period. S&M/Sales ratio is relatively high, clearly over 40% in all sectors. This shows that the firms feel the pressure arising from intense competition, and to succeed firms must make relatively heavy investments in S&M. Figure 4.4 confirms our view that SCM sector is on growth phase. Firm are still small, and in proportion to their operations, A&G costs have been high. However, towards the end of the period, the relative A&G costs have dropped closed to same level where the other two sectors are due to growth in sales levels.

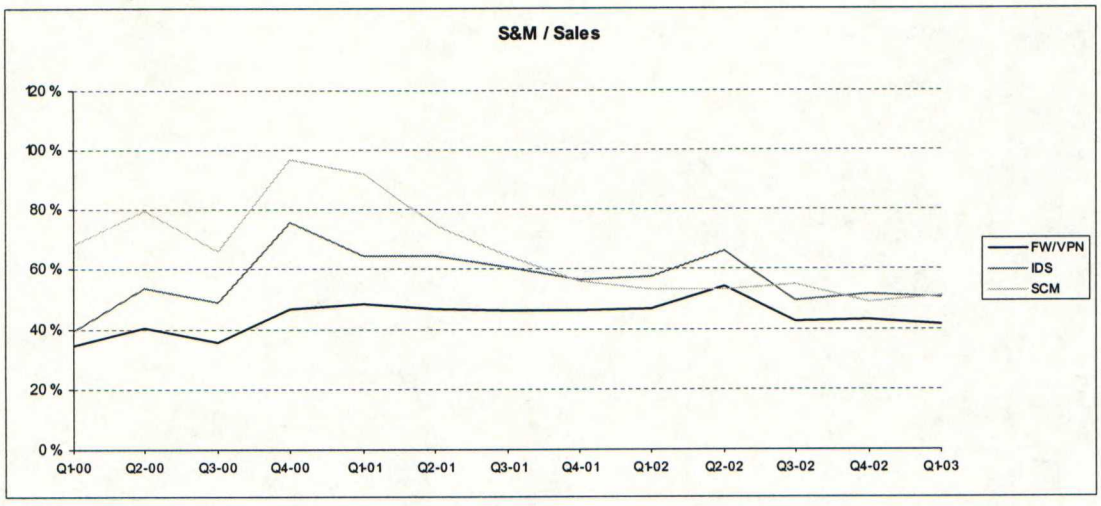

Figure 4.3 S&M costs in relation to sales

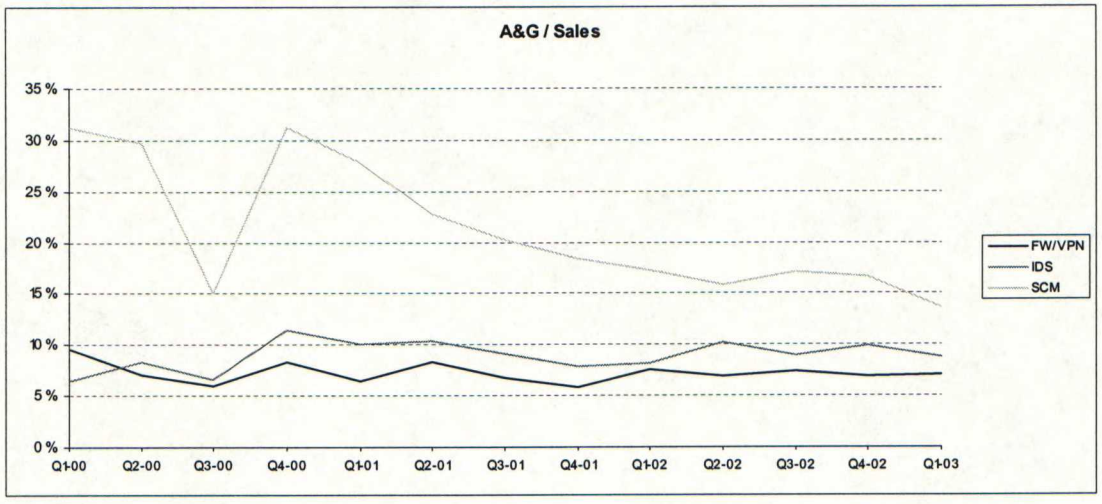

Figure 4.4 A&G costs in relation to sales

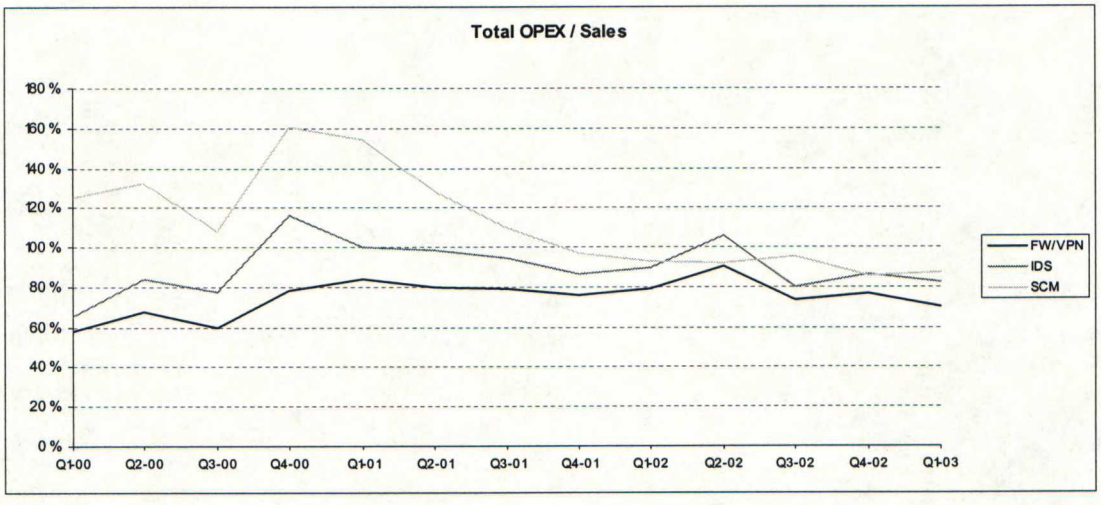

Figure 4.5 Total operating expenses in relation to sales

With total operating expenses, increase in sales levels has helped SCM to drop its relative costs to same level with other sectors. Interestingly we can see that despite of hard times in the internet security market during these 13 quarters, there can not be seen any major cost-cutting in any segment. This tells us that the industry itself is on healthy basis and the firms have their belief on future growth.

Operating profit margin

Because the emphasis of this study is related only on profitability and efficiency in sectors' *operations*, the other profit measure used in this study is operating profit margin. This ratio gives a measure of operating income generated by sales. While it is desirable for this ratio to be as high as possible, competitive forces within the industry, economic conditions, maturity stage, operating characteristics etc. will cause the operating profit margin vary.

Operating profit shows, how the sales on cash basis cover the short-term factor costs, costs of goods sold, and operating expenses. This is key ratio in firms' suppliers' viewpoint, and indicates how a firm has managed to meet these stakeholders' demands for payment. It also shows the disposable income to be used in other expenses, interest payments, taxes, dividend payments, capital expenditures, and paying back liabilities. So it is clear that with the strategic management firms pursue to secure a sufficient operating profit level both in short-term and long-term.

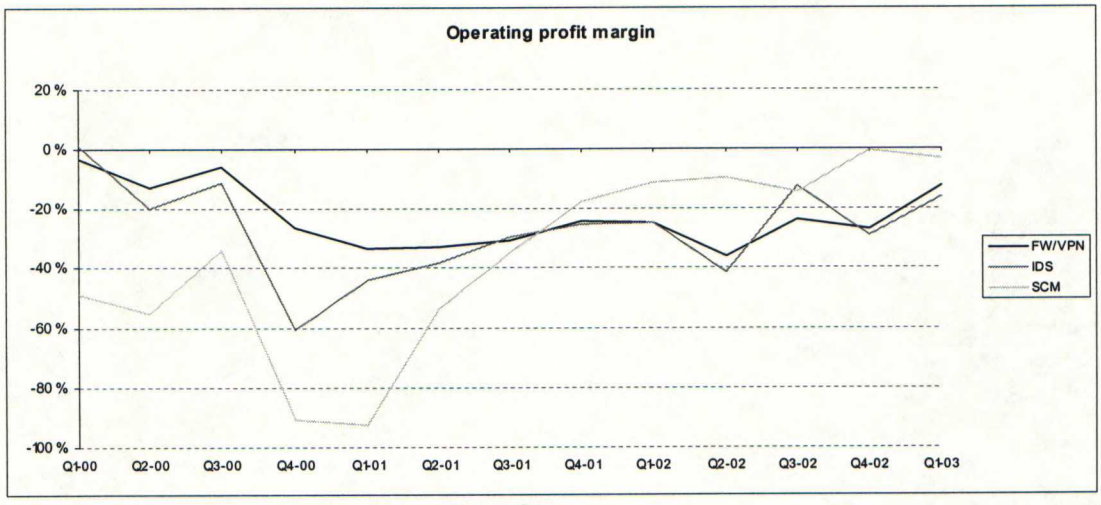

Figure 4.6 Operating profit margin

As can be seen in the chart, the whole internet security industry has suffered from a negative operating profit margin under the review period. The major driver in FW/VPN and IDS markets has been low sales levels, which have pushed operating profit down. The majority of the firms are on a healthy basis, so the industry itself is vital, but poor economic conditions are depressing it. With SCM we can see that this sector is the fastest growing in the industry. Both gross profit margin and operating profit margin have significantly strengthened, making SCM the most profitable sector at the moment. This is due to recovering economic conditions, but also, most of all, growing market where the rivalry is not as intense as in the other two markets. However, we can expect that this trend will soon tighten the competition, cutting margins and lowering the profitability.

It is also important to notice that after Q1 2001, the overall trend in operating profit levels in the industry has been upwards. Despite the hard times in world economy, this clearly shows that businesses on healthy basis have managed to improve their performance. Big players like Checkpoint, Cisco and Symantec have maintained their operating profit margins positive, due to the diversified businesses, cash flows from other operations and economies of scale. However, smaller businesses operating only in the internet security industry have enhanced their operating performance and with this trend the outlook looks promising.

4.3 Assessment of efficiency

Asset turnover is the second driver of an organization's return on equity. Since firms invest significant resources in their assets, using them productively, i.e. efficiently, is critical to overall profitability. A detailed analysis of asset turnover allows evaluating management's utilization of assets and efficiency in managing assets. Alternatively, management's ability to produce sales from assets can be measured. The asset management can be divided into two areas: (1) working capital management and (2) management of long-term assets (Palepu 1996, 4.10). Working capital, also called net working capital, is the difference between firm's current assets and current liabilities. Its main components are accounts receivable, inventory, and accounts payable. Firm's credit policies and distribution policies determine its level of accounts receivable. The production process and the need for buffer stocks determine the optimal inventory level. Finally, accounts payable is one source of financing, which normal level is determined by common payment practices within an industry and firm's collection policies.

The following ratios are used in this study to analyse firms' investment management (Gibson 1996, 279-280; 378):

$$(3)\quad Total\ Asset\ Turnover = \frac{Sales}{Assets}$$

$$(4)\quad Working\ Capital\ Turnover = \frac{Sales}{Current\ Assets - Current\ Liabilities}$$

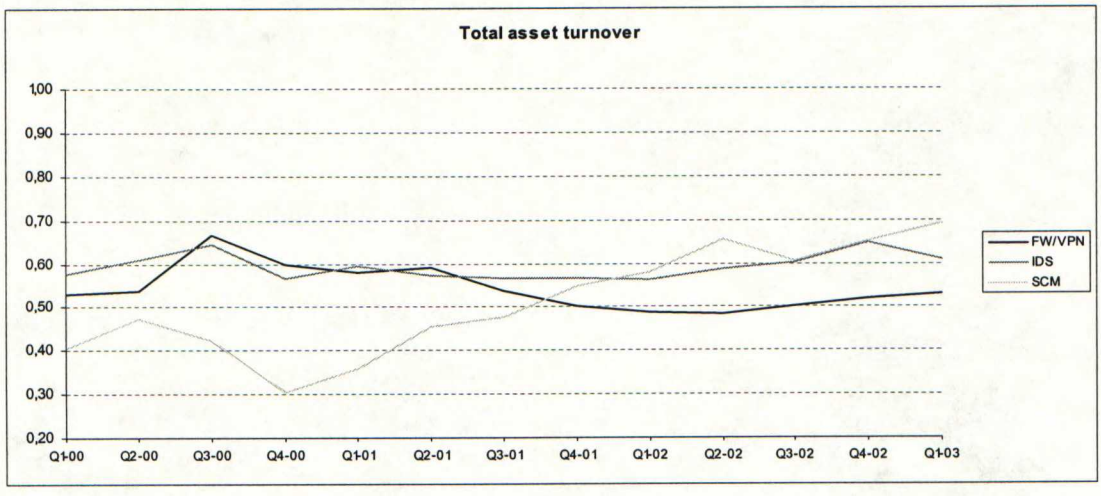

Figure 4.7 Total asset turnover

Total assets turnover measures the activity of the assets and the ability to generate sales through the use of assets. In other words, asset turnover indicates how many sales dollars a firm is able to generate for each dollar of its assets.

FW/VPN and IDS sectors' ratios have stayed relatively stable during the period, but in SCM market the average asset turnover ratio has increased somewhat significantly and the trend in SCM has been upwards since Q4 2000. This is mainly due to rise in sales level. Total assets turnover ratios are quite low throughout the whole internet security industry. This clearly indicates that in relation to sales levels, the firms have relatively heavy balance sheet structures. However, most of the assets are compounded of current assets, as can be seen in Figure 4.8. Firms within the industry have low investments in long-term assets, which clearly strengthens their liquidity. Going even more detailed level; we can see that the majority of current assets are compounded of cash and cash equivalents, and marketable securities. It is interesting to notice that many firms operating in the internet security industry have such a heavy investments in these items, i.e. liquid assets. This can be, however, one sign of the precautionary measures the firms have used because of the poor economic conditions, to secure their debt paying ability, and the continuity of their operations.

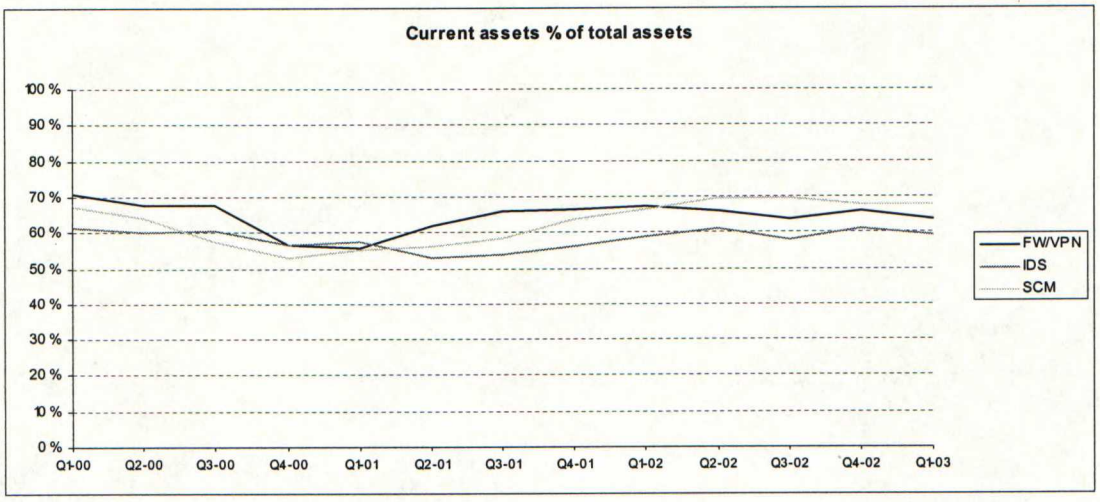

Figure 4.8 Current assets % of total assets

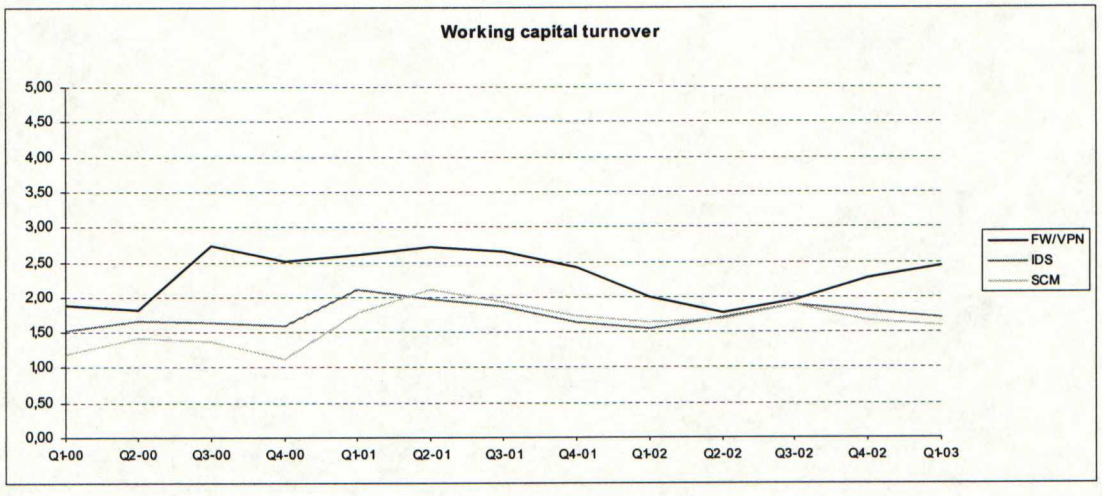

Figure 4.9 Working capital turnover

Working capital turnover gives the indication of the turnover in working capital per year. This ratio should be compared as a trend line, and between the sectors in the industry in order to form an opinion as to the adequacy of the working capital turnover. There are no guidelines to what the ratio should be, but a low ratio tentatively indicates an unprofitable use of working capital. That is, sales are not adequate in relation to the available amount of working capital. Respectively, a high ratio tentatively indicates that the firm is undercapitalized, i.e. the firm is particularly vulnerable to liquidity problems when some negative changes in operating environment occur.

All the three markets have relatively low working capital turnover ratio. This is consistent with the fact that in the firms within the industry balance sheets are heavy, and especially the proportion of current assets in balance sheets is high. In IDS and SCM sectors ratio has been going slightly upwards both at the approximately same level. In FW/VPN the trend line has also slightly increased from the initial level. FW/VPN sector has the highest working capital turnover, and towards end of the period, the gap between the sectors has increased. During the last three quarters, working capital turnover in FW/VPN sector has increased, while in IDS and SCM sectors it has decreased. This reflects the changes in net working capital. Thus, we can see that in relation to total assets, the firms in IDS and SCM sectors have increased their investments in working capital more than the firms in FW/VPN sector during the last quarters.

The information got from working capital turnover ratios is in line with the findings related to total asset turnover. Therefore, we can conclude that firms have been cautious with their investment management. The balance sheets are heavy in relation to sales levels, which in turn is reflected in low efficiency ratios. However, as already mentioned, the majority of assets are composed of current assets and liquid funds. Due to poor economic conditions, this has probably been one precautionary measure especially for the smaller firms to secure their solvency. However, while the level of current assets has only slightly increased, current liabilities' importance as a source of financing has become more central during the period under review. Altogether, high profitability and low efficiency insist that the firms operating in the internet security industry are mainly implementing differentiation strategy.

4.4 Assessment of financial leverage

Financial leverage enables a firm to have an asset base larger than its equity. The firm can augment its equity through borrowing and the creation of other liabilities, such as accounts payable, accrued liabilities, and deferred taxes. Financial leverage increases

a firm's ROI as long as the cost of the liabilities is less than the return from investing these funds. Naturally, financial leverage also increases the firm's risk. Unlike equity, liabilities have predefined payment terms, and the firm faces risk of financial distress if it fails to meet these commitments. In the next sections the topic is divided into two categories: short-term liquidity management and long-term liquidity management.

4.4.1 Current liabilities and short-term liquidity

Evaluation of short-term liquidity measures management's ability to meet organization's credit payments as they come due. It also measures firms' ability to repay their current liabilities. The following ratios are used to analyse the risk related to current liabilities (Gibson 1996, 272-275):

$$(5)\quad Working\ Capital = Current\ Assets - Current\ Liabilities$$

$$(6)\quad Accounts\ Receivable\ Turnover\ in\ Days = \frac{Accounts\ Receivable}{Average\ Sales\ per\ Day}$$

$$(7)\quad Accounts\ Payable\ Turnover\ in\ Days = \frac{Accounts\ Payable}{Average\ COGS\ per\ Day}$$

$$(8)\quad Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities}$$

$$(9)\quad Quick\ Ratio = \frac{Current\ Assets - Inventories}{Current\ Liabilities}$$

Working capital is the difference between a firm's current assets and current liabilities. The components of working capital that we will focus are accounts receivable and accounts payable. A firm's credit policies and distribution policies

determine its optimal level of accounts receivable. Correspondingly, accounts payable is a routine source of financing for a firm's working capital, and payment practices in an industry determine the normal level of accounts payable. A comparison of current assets with current liabilities gives an indication of firm's short-term debt-paying ability. Current and quick ratios compare firm's current liabilities with its short-term assets, which can be used to repay the current liabilities. The net working capital (also called working capital), the excess of current assets over current liabilities, is one of the primary indications of the short-run solvency. The amount should be compared with past amounts and trends to determine whether the net working capital is reasonable (Gibson 1996,273). Comparison of net working capital of one firm with that of another is usually meaningless because of size differences between various organizations. However, it must be pointed out that a negative net working capital does not necessarily mean that it is out of the line. Especially growing small firms may find it an easy way to short-term financing.

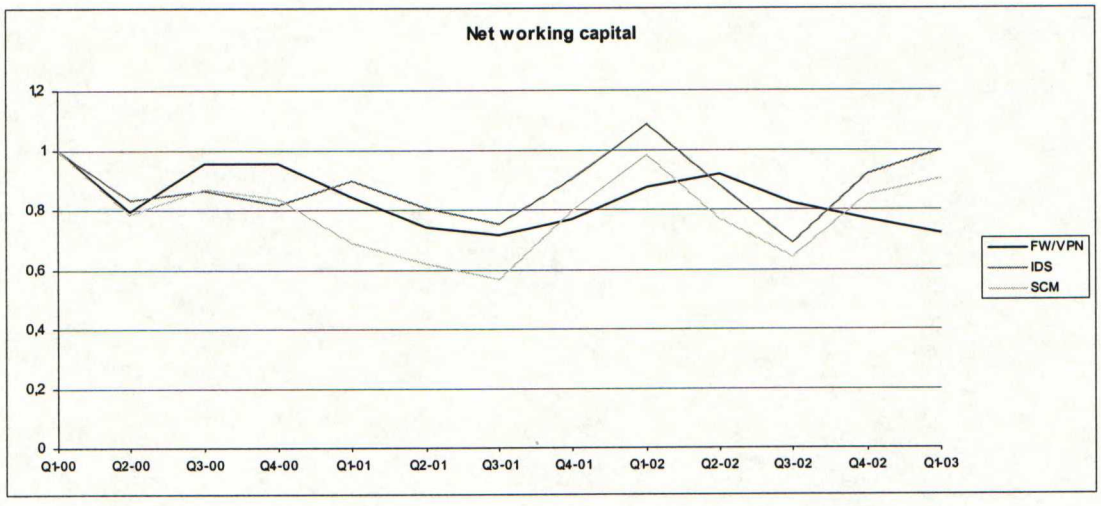

Figure 4.10 Net working capital

In this study the examination of net working capital is done as a horizontal comparison, by comparing each amount with a base amount for a selected base quarter, here Q1 2000. After that the average changes are calculated for each sector.

During the period under review the level of net working capital has slightly decreased in all sectors. This indicates that the short-term solvency has weakened. In FW/VPN sector the movement has quite steady, while in the other two sectors net working capital has been going up and down. In these sectors the majority of the firms have faced a decline in their working capital levels. The similarity seen in the trend lines of IDS and SCM arises, because the firms having the most substantial changes in working capital are operating in both sectors.

By reviewing firm-level data we can see that there are only two firms having a negative net working capital. Of course there are considerably differences in overall levels, because of the size differences between the various organizations. However, the fact that only two firms out of 23 have had negative net working capital is a clear indication of organizations' caution. In figures 4.11 and 4.12 we see changes in current assets and current liabilities levels.

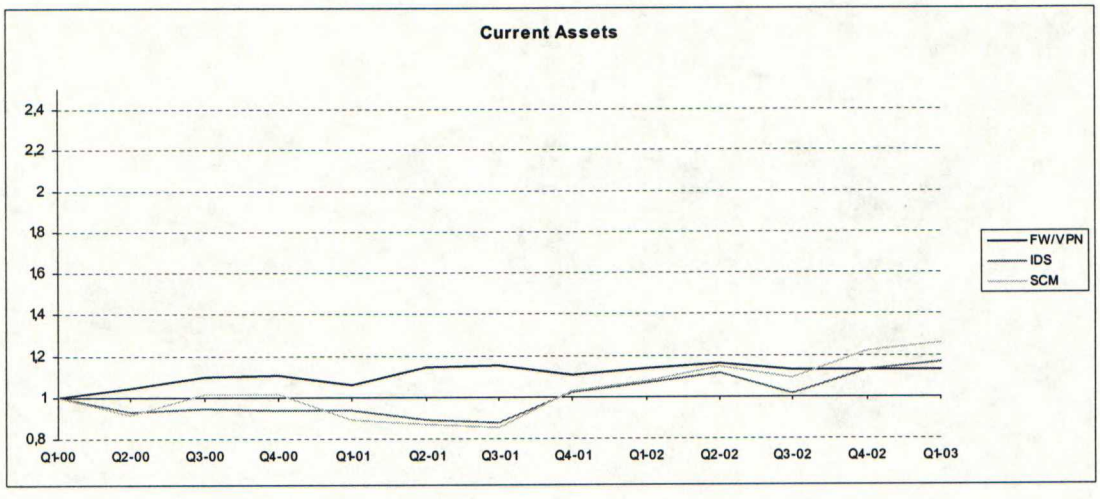

Figure 4.11 Current assets

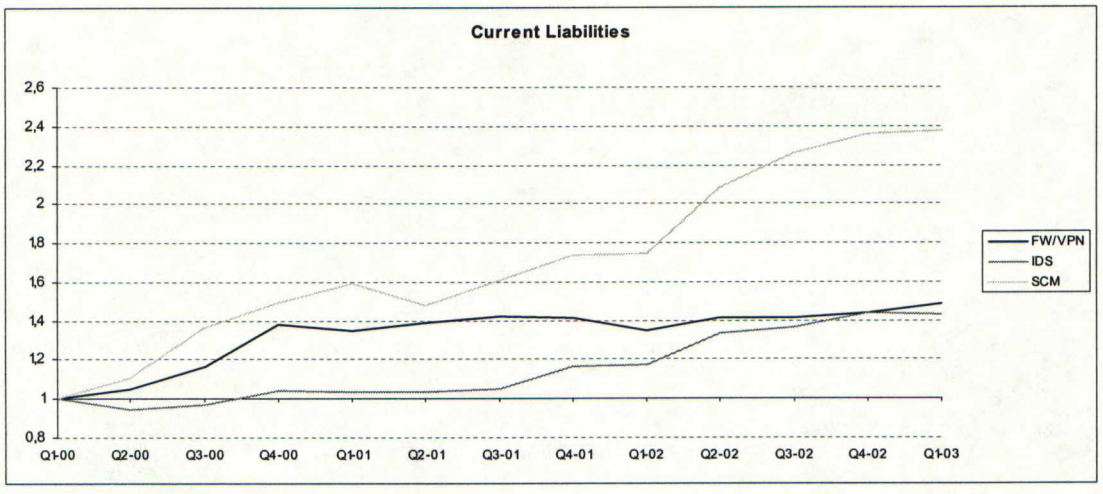

Figure 4.12 Current liabilities

These reveal that in fact, the level of current assets has stayed relatively stable during the review period in all sectors, while the average level of current liabilities has increased throughout the industry, but especially in SCM sector. This indicates that role of current liabilities as a source of financing has become more central (see also figures 4.17 - 4.19). Because the initial levels of current assets in balance sheet are high, the net effects on working capital are not so dramatic, although growth of current liabilities exceeds growth of current assets.

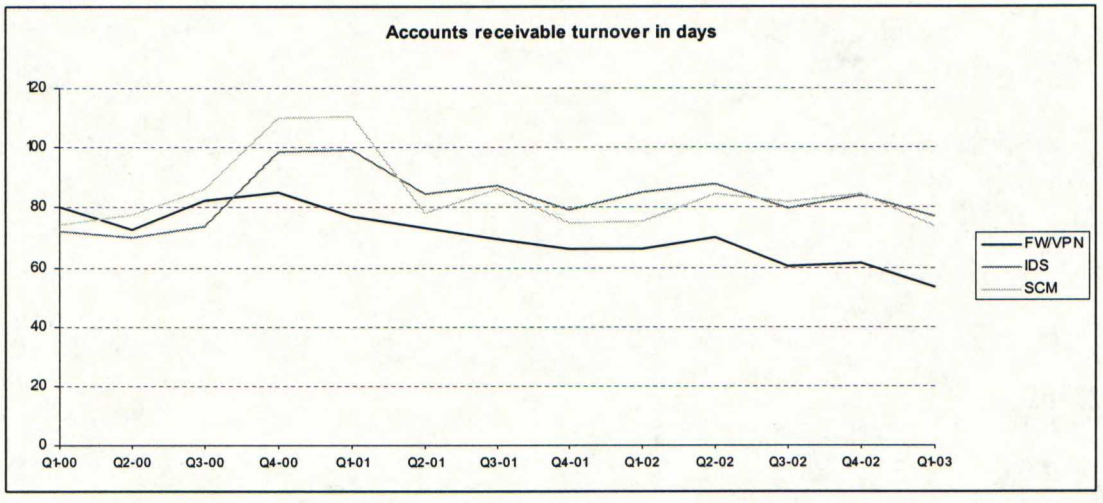

Figure 4.13 Accounts receivable turnover in days

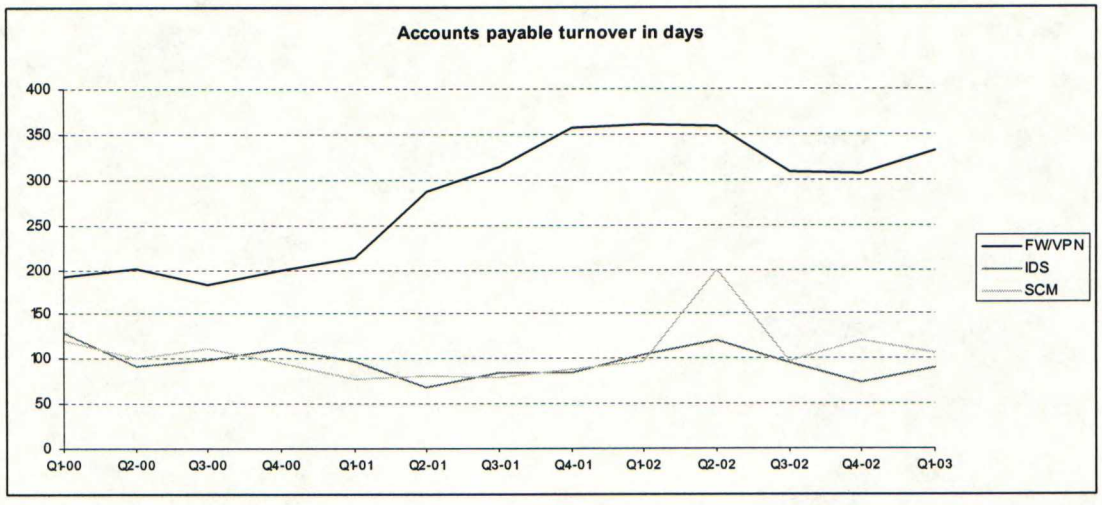

Figure 4.14 Accounts payable turnover in days

We also review both accounts receivable turnover in days and accounts payable turnover in days. These are one way to evaluate the efficiency of a firm's working capital management, but also short-term risk. Strictly speaking, one should use credit sales to calculate accounts receivable turnover in days. However, since it is difficult impossible to obtain data on credit sales, total sales are used instead. Similarly, in calculation of accounts payable turnover in days, cost of goods sold is substituted for purchases because of data availability.

Credit policies have been tightened in every sector during the period under review. Due to poor economic conditions, it is obvious that firms have reduced their credit granting to diminish the risk of bad debts. FW/VPN sector has the shortest turnovers because the firms operating in it are on average bigger than the firm in other two sectors.

FW/VPN is the only sector where accounts payable turnover in days has increased. In prevailing conditions, it is easier for bigger firms to raise their borrowings. Smaller firms face it difficult to assure their debtors to extend the term of loans. As we can see, the turnover ratios have decreased in IDS and SCM sectors. Altogether, in FW/VPN sector, accounts payable has been used as a source of short-term financing, while in other two sectors, the other items in current liabilities have been more used.

Since current assets and current liabilities have comparable duration, the current ratio is the key index of a firm's short-term liquidity. Current ratio more than one is usually considered to be an indication that the firm can cover its liabilities with the cash realized from its current assets. However, the firm can face a short-term liquidity problem even with a current ratio of one or higher, when some of its current assets are not easy to liquidate. (Palepu 4.13) A comparison of industry averages should be made to found a current ratio typical for similar firms, since it can vary significantly between different industries. In general, the shorter the operating cycle within the industry, the lower the current ratio. A current ratio is considered to be more indicative of the short-term debt-paying ability than the net working capital. The latter only determines the absolute difference between the items, while the current ratio shows the relationship between the size of the current assets and current liabilities.

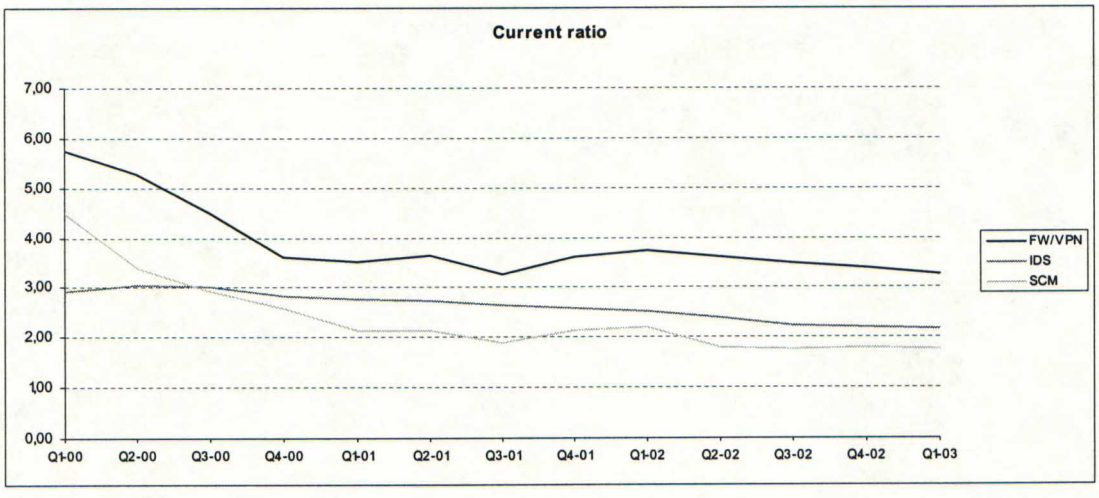

Figure 4.15 Current ratio

As can bee seen in the chart, the whole internet security industry has a good short-term liquidity based on the average current ratios. During the first four quarters the ratio has dropped in FW/VPN and SCM markets, but after that it has stayed steady in all three sectors. This decrease can be explained by the rise in current liabilities. In FW/VPN sector the level of current liabilities rose during the first four quarters, but after than it has stayed stable. In IDS sector the both current assets and current liabilities have stayed approximately at the same level. Therefore there cannot be seen

any major changes in current ratio. SCM sector is facing the growing phase and so in their trend lines can be seen additional short-term debt financing. Although the trend lines have slightly decreased, on average neither of the segments is facing a solvency problem in the near future because of the strong current asset levels.

The quick ratio captures the firm's ability to cover its current liabilities from liquid assets because at times, it is desirable to access a more immediate position than that indicated by the current ratio. The quick ratio assumes that the firm's accounts receivable is liquid. This is true in industries where the credit-worthiness of the customers is beyond dispute, or when receivables are collected in a very short period. Inventory is removed from current assets when computing quick ratio. Some of reasons are that inventory may rather slow-moving or partially obsolete, and parts of the inventory may have been pledged to specific creditors. The usual guideline for quick ratio is 1.00. A comparison should be made with the firm's past quick ratios and with major competitors and the industry averages.

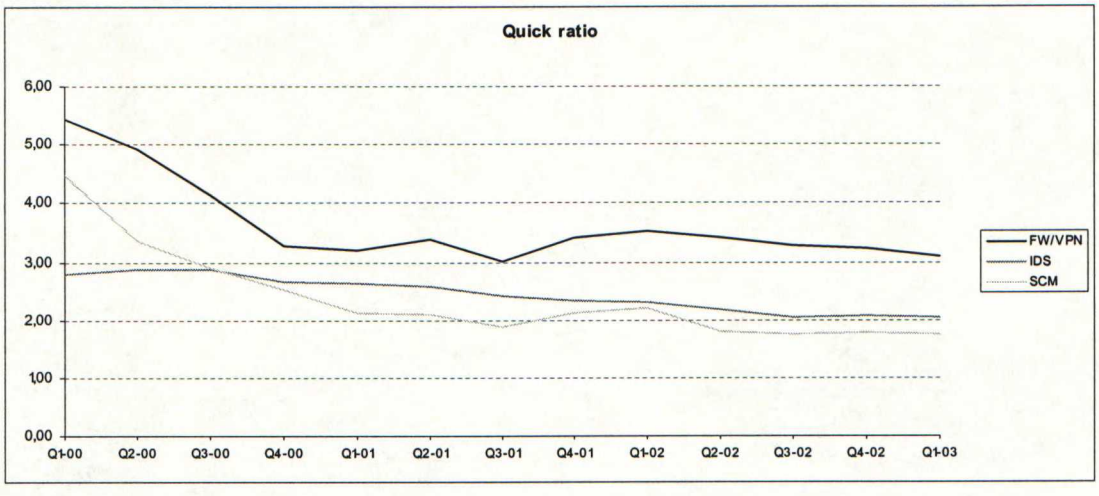

Figure 4.16 Quick ratio

Quick ratio chart gives the symmetric information with current ratio. All the trend lines are clearly above 1.00, the theoretical guide line for this ratio. This explicitly indicates that all the segments in the internet security industry have good short-term solvency.

In summary, we can say that short-term liquidity is relatively strong throughout the industry. Even if current liabilities have become more important source of financing during the period in IDS and SCM sector, this cannot be treated as a significant threat, at least not yet. The rise in current liabilities is reflected especially in FW/VPN and SCM sectors and their current- and quick ratios. Still, however, FW/VPN sector has the strongest short-term debt paying ability of the three sectors. In FW/VPN sector current liabilities' importance in financing has been kept unchanged while in SCM and IDS sectors its role has become more central. However, neither these sectors will be facing any solvency problems in the near future.

4.4.2 Debt and long-term solvency

An organization's financial leverage is also influenced by its financing policy. There are several potential benefits from debt financing. First, debt is typically cheaper than equity because the firm guarantees predefined payment terms to debt holders. Second, in most countries, interest on debt financing is tax deductible, whereas dividends paid to shareholders are not. Third, debt financing can impose discipline on the firm's management and motivate it to reduce wasteful expenditures. Fourth, it is often easier for management to communicate its proprietary information on the firm's strategies and outlook to private lenders than to a public capital markets. Such communication can reduce a firm's cost of capital. However, too heavy reliance on debt financing increases the cost of capital. A firm will also face financial distress if it defaults. Debt holders also impose covenants on the firm, restricting the firm's operating, investing, and financing decisions. The optimal capital structure for a firm is determined mainly by its business risk. A steady operating environment with stable earnings allows heavier debt financing, while a volatile operating environment with unpredictable changes usually forces the firm to rely primarily on equity financing. (Palepu 4.14-4.15)

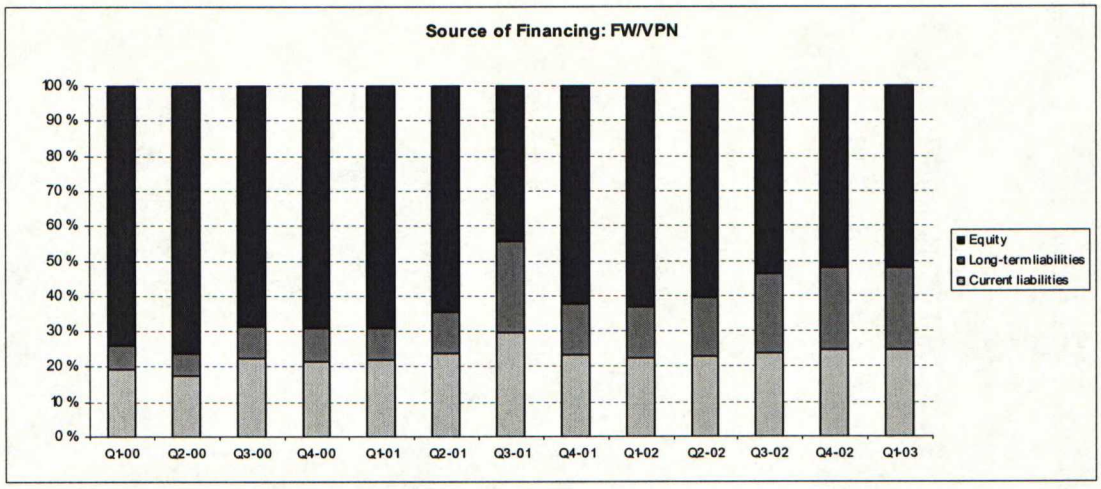

Figure 4.17 Source of financing: FW/VPN

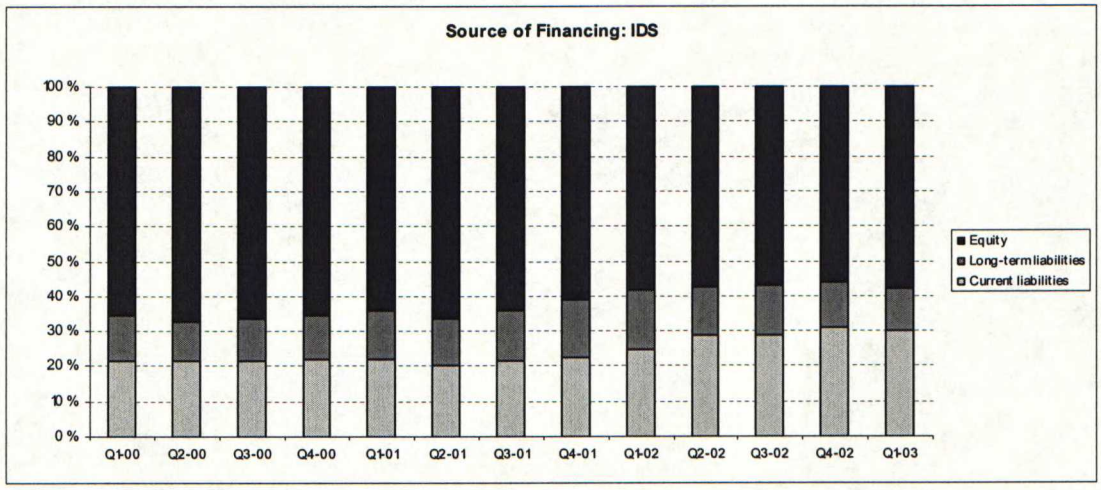

Figure 4.18 Source of financing: IDS

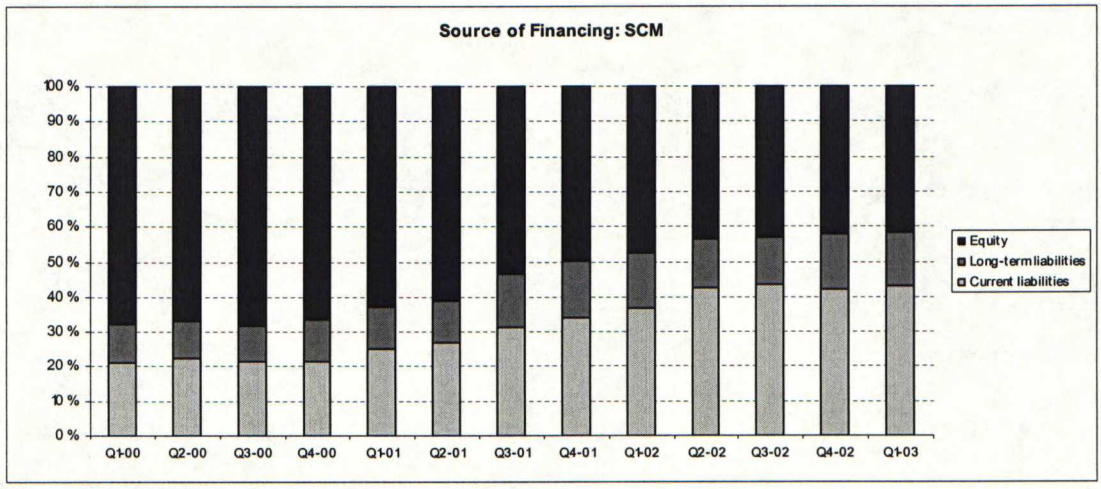

Figure 4.19 Source of financing: SCM

In figures 4.17 – 4.19 are shown average capital structures and sources of financing in the sectors. From these we can see that actually the role of long-term financing is quite small in all sectors. In FW/VPN sector the proportion of long-term liabilities has become more significant during the period. Respectively the role of equity financing has diminished. Current liabilities' share in capital structure has stayed somewhat unchanged.

In SCM and IDS sectors the role of short-term debt in the form of current liabilities has become more important as a source of financing while, also in these sectors, the share of equity financing has decreased. Here, correspondingly, proportion of long-term liabilities in capital structure has stayed unchanged.

Next, we will examine sectors' long-term solvency with financial ratios. The following ratios are used in this study to evaluate capital structure, or financial leverage management of an organization (Gibson 1996, 318-323):

$$(10)\quad Debt\ Ratio = \frac{Total\ Liabilities}{Total\ Assets}$$

$$(11)\quad Debt-to-Equity\ Ratio = \frac{Total\ Liabilities}{Shareholders\ Equity}$$

Debt ratio determines a firm's long-term debt-paying ability. It indicates the percentage of assets financed by creditors, and it helps to determine how well creditors are protected in case of insolvency. For the organization's long-term debt-paying ability, the lower this ratio, the better the organization's position. (Gibson, 317) The debt ratio should be compared with industry averages to find out where the individual firm are compared to the competitors. In this study the computation of the debt ratio is conservative, i.e. including the short-term liabilities in the debt ratio.

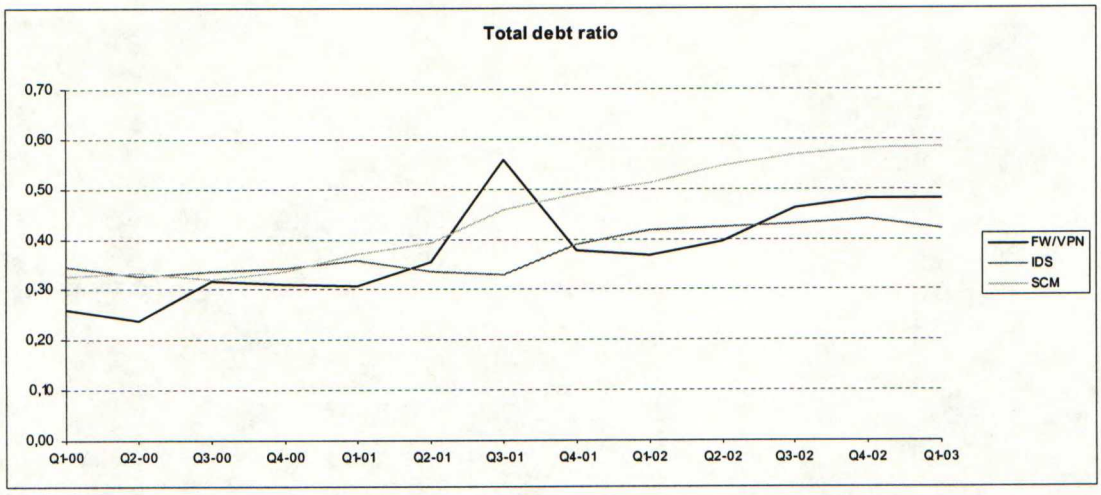

Figure 4.20 Total debt ratio

In the internet security industry SCM sector is most heavily in debt. Until Q1 2001 all the three markets had their ratios quite at the same level. After that IDS sector has managed to control its indebtedness most efficiently, staying all the time below 0.50. This indicates that on average the firms in IDS market have more equity finance than debt finance. However, the trend lines are moving upwards in all sectors, which means that previously more equity financed firms are raising more and more debt finance.

Debt-to-equity ratio determines also long-term debt-paying ability. This helps to determine how well creditors are protected in case of insolvency. From the perspective of long-term debt-paying ability, the lower this ratio is, the better the firm's debt position. Both the ratios have same objectives and use same figures, except in a different form. Therefore, they are alternatives to each other. Debt-to-equity ratio restates assets-to-equity ratio, one of the three primary ratios underlying ROE, by subtracting 1 from it. This study takes a conservative position including all the recorded liabilities and near liabilities, and understating the shareholders' equity to the extent that assets have a value greater than book value.

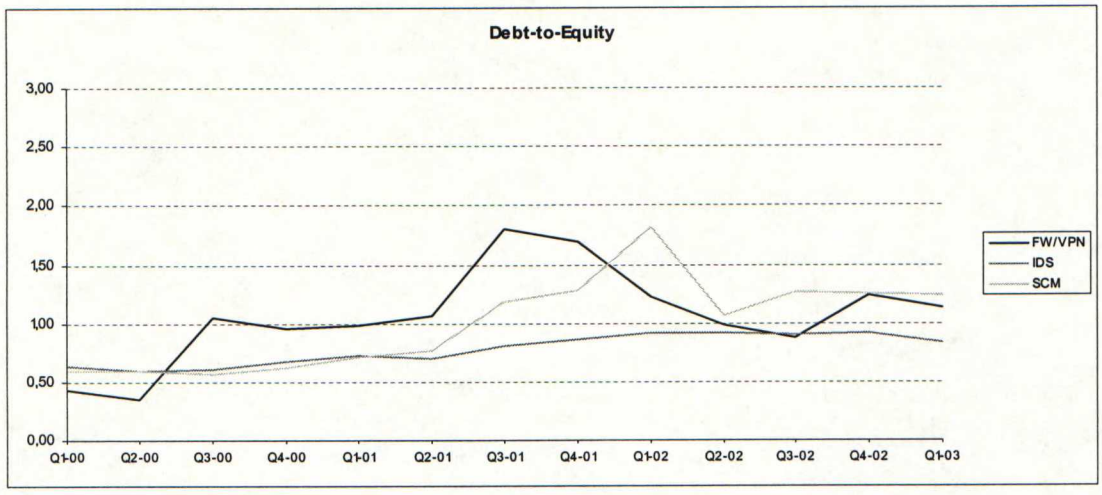

Figure 4.21 Debt-to-equity ratio

Debt-to-equity ratio gives us more detailed information concerning sectors' long-term solvency. Basically debt ratio and debt-to-equity ratio have the same objectives and use the same figures, except in a different form. However, within the internet security industry some of the firms are having a negative equity, as result from continuous negative income financing. It is useless to compute debt-to-equity ratio with negative equity. Thus, when equity has turned into negative, the numbers are excluded from the average.

With the trend lines we can see that within the internet security industry, IDS sector has the best debt position. Development of its indebtedness has been modest and stable. The figure indicates that a smaller amount of funds has come from outsiders than shareholders' equity provided. With FW/VPN and SCM sectors debt-to-equity ratios have varied more and during the last six quarters both of the sectors have basically been carrying more debt than equity in their balance sheets.

4.5 Summary of the findings

In table 4.1 are presented the major findings in the study. Next, we will shortly go through the main findings from the study.

Generally speaking FW/VPN market has the most stable gross profit margin, but also, clearly the lowest of these three sectors. FW/VPN market faces the highest degree of competition in internet security industry. Operators are relatively large firms having a strong bargaining power over their suppliers, but degree of competition reduces the price premium. Low sales levels have pushed operating profit margin down during the period under review. However, after Q2001 the overall trend in operating profit levels has been upwards in the whole internet security industry.

In the IDS markets gross profit margin has stayed between ca. 60-70% and there have not been any substantial changes in the margins. In IDS market the rivalry is not as intense as in FW/VPN market. This sector is a growing market and while the firms are still relatively small, there are room for every competitor, and thus, competition does not decrease the price premium. In IDS sector also low sales levels have pushed operating profit margin down.

SCM market has had the highest gross profit margin during the period. After Q1 2001, every firm operating in SCM market has managed to improve its margin. As a result, within internet security industry, firms in SCM market have managed to enhance their gross profit margin most of all. SCM sector is the fastest growing in the industry. Both gross profit margin and operating profit margin have significantly strengthened, making SCM the most profitable sector at the moment. This is due to recovering economic conditions, but also, most of all, growing market where the rivalry is not as intense as in the other two markets. However, we can expect that this trend will soon tighten the competition, cutting margins and lowering the profitability.

The whole internet security industry has suffered from a negative operating profit margin. Our opinion is that the industry itself is vital, but poor economic conditions are depressing it. After Q1 2001, the overall trend in operating profit levels in the industry has been upwards. Despite the hard times in world economy, this clearly shows that businesses on healthy basis have managed to improve their performance. Big players have maintained their operating profit margins positive, thanks to diversified businesses, cash flows from other operations and scale of economies. However, smaller businesses operating only in internet security industry have enhanced their operating performance and with this trend the outlook looks promising.

Total assets turnover ratios are quite low throughout the whole industry. The firms have relatively heavy balance sheet structures most of the assets are compounded of current assets which clearly strengthens their liquidity. Going even more detailed level; we can see that the majority of current assets are compounded of cash and cash equivalents, and marketable securities. It is interesting to notice that many firms operating in the internet security industry have such a heavy investments in these items, i.e. liquid assets. We consider this as a sign of the precautionary measures the firms have used because of the poor economic conditions, to secure their debt paying ability, and the continuity of their operations.

FW/VPN sector has the highest working capital turnover ratio. This indicates that the sector has lowest investments in working capital. In the internet security industry FW/VPN sector has the lowest asset turnover ratio, due to heaviest balance sheet in relation to sales. Altogether, efficiency ratios have stayed stable in the sector. IDS is clearly the most stable sector in the industry in terms of efficiency. Both efficiency ratios have stayed approximately at the same level during the period under review. SCM sector has the highest asset turnover ratio. It has increased significantly during the period, mainly due to rise in sales levels. On the contrary, working capital turnover is at the lowest level in the industry, even it has stayed stable. This is due to highest working capital level in relation to the size of the operations. During the last

three quarters, working capital turnover in FW/VPN sector has increased, while in IDS and SCM sectors it has decreased. This reflects the changes in net working capital. Thus, we can see that in relation to total assets, the firms in IDS and SCM sectors have increased their investments in working capital more than the firms in FW/VPN sector during the last quarters.

Based on the efficiency ratios, we conclude that firms have been cautious with their investment management. The balance sheets are heavy and working capital levels are high in relation to sales levels, which in turn is reflected in low efficiency ratios. However, as already mentioned, the majority of assets are composed of current assets and liquid funds. Due to poor economic conditions, this has probably been one precautionary measure especially for the smaller firms to secure their solvency. However, while the level of current assets has only slightly increased, current liabilities' importance as a source of financing has become more central during the period under review. Altogether, high profitability and low efficiency insist that the firms operating in the internet security industry are mainly implementing differentiation strategy.

FW/VPN sector has the strongest short-term liquidity in the internet security industry, even it has weakened during the period due to rise in current liabilities. Despite this, the importance of current assets as a source of financing has been kept unchanged. On the contrary, the proportion of long-term liabilities has become more significant in the financing structure. Respectively the role of equity financing has diminished during the period.

In IDS sector the short-term debt paying ability has stayed stable. The role of short-term debt in the form of current liabilities has become more important as a source of financing, while the share of equity financing has decreased. Proportion of long-term liabilities in capital structure has stayed unchanged. Altogether, IDS sector has the best debt position in the industry. Firm within it have managed to control their

indebtedness most efficiently. Also this indicates, that the firms within the sector have still more equity finance that debt finance.

In SCM sector the role of short-term debt in the form of current liabilities has become more important as a source of financing. This rise is reflected in current ratio and quick ratio. This means that the sectors short-term liquidity has weakened during the period. The proportion of long-term liabilities in capital structure has stayed unchanged, while the share of equity finance has decreased. SCM is the most heavily in debt within the industry. Basically, during the last six quarters the firms in the sector have been carrying more debt than equity in their balance sheets.

	PROFITABILITY	EFFICIENCY	FINANCIAL LEVERAGE
FW/VPN	• Most stable gross profit margin, but also, clearly the lowest • Highest degree of competition. • Operators are relatively large firms having a strong bargaining power over their suppliers, degree of competition reduces the price premium. • Low sales levels have pushed operating profit down. • After Q1 2001, the overall trend in operating profit levels in the industry has been upwards.	• Low efficiency ratios. • Heavy balance sheet in relation to sales. • Most of the assets compounded of current assets. • Highest working capital turnover, but lowest asset turnover. • Heaviest balance sheet in relation to sales. • Lowest investments in working capital in relation to sales. • Ratios have stayed relatively stable. • Low efficiency reflects the precautionary measures arising from poor economic conditions.	• Strongest short-term liquidity, even it has weakened due to rise in current liabilities. • However, the importance of current liabilities as a source of financing has been kept unchanged. • Proportion of long-term liabilities has become more significant during the period. Respectively the role of equity financing has diminished.
IDS	• In the IDS markets gross profit margin has stayed between ca. 60-70% However, there have not been any substantial changes in the margins either. • Growing market, firms are relatively small, there are room for every competitor, and thus, competition does not decrease the price premium. • Low sales levels have pushed operating profit down. • After Q1 2001, the overall trend in operating profit levels in the industry has been upwards	• Low efficiency ratios • Heavy balance sheet in relation to sales • Most of the assets compounded of current assets • Both efficiency ratios have stayed approximately at the same level. • Clearly the most stable sector in terms of efficiency. • Low efficiency reflects the precautionary measures arising from poor economic conditions.	• Short-term debt paying ability has stayed stable. • Role of short-term debt in the form of current liabilities has become more important as a source of financing while, the share of equity financing has decreased. • Proportion of long-term liabilities in capital structure has stayed unchanged. • Sector has the best debt position. • Sector has managed to control its indebtedness most efficiently, This indicates that on average the firms in the sector have more equity finance than debt finance.
SCM	• Highest gross profit and operating profit margin at the moment. • Firms in SCM market have managed to enhance both their gross profit and operating profit margin most of all. • Growing market, firms are relatively small, there are room for every competitor, and thus, competition does not decrease the price premium • Most profitable sector at the moment. • Competition expected to tighten, cutting margins and lowering the profitability.	• Low efficiency ratios. • Heavy balance sheet in relation to sales. • Most of the assets compounded of current assets. • Highest asset turnover ratio, but lowest working capital turnover ratio. • Asset turnover has increased significantly mainly due to rise in sales. • Working capital turnover has stayed stable. Sector has highest working capital level in relation to size of the operations. • Low efficiency reflects the precautionary measures arising	• Role of short-term debt in the form of current liabilities has become more important as a source of financing . • Rise in current liabilities is reflected in current- and quick ratios, i.e. short-term liquidity has weakened. • Share of equity financing has decreased. • Proportion of long-term liabilities in capital structure has stayed unchanged. • Sector is most heavily in debt. • Debt-to-equity ratios have varied and during the last six quarters the firms have been carrying more debt than equity in their balance sheets.

Table 4.1 Summary of the findings

5 SUMMARY AND CONCLUSIONS

The key to fast and effective decisions is realistic and up-to-date information about the operating environment and the organization's strategic position in it. With industry analysis the strategic decisions can be based on better knowledge and thus, the firm is able to foresee its competitors' reactions to strategic changes. With this information the organization can also allocate resources more effectively by getting know its own strengths in relation to industry. Financial analysis of an industry can be used to evaluate how well the management implements the strategy and manages key success factors and risk by quantitatively analyzing operating, investing, and financing performance within the industry.

The aim of this study is not to replace traditional systematic approaches of industry and competitor analysis, but instead to contribute by supplementing information processing perspective to this systematic framework and by this, to provide one possibility of how competitive information can managed and processed. The target of this study is the internet security industry as a whole and the three sectors within it. This study does not, however, deal extensively with the perspective of an individual organization. Even if the organizational perspective is discussed, the focus of the study is on the three sectors within the industry.

The ultimate objective of this study was to examine the performance of internet security industry during the period between Q1 2000 and Q1 2003. The main problem was stated as: *Are there any significant distinctions between different sectors within the industry and their performance?* To able to answer this problem, we first clarified the subproblems.

We began by defining *which are the main competitors in the internet security industry*. In the study internet security industry is divided into three sectors. The industry itself is vast and includes many sectors. The selection of the sectors covered

in the study was subjective and done by their relevance in the industry. These three sectors can be seen the most relevant in the industry. The problem of selecting which firms to include in the analysis was solved by using two market research firms' surveys and the list of the organizations covered in those. To get accurate information, we selected publicly traded organizations, which are listed in NASDAQ. The represented firms cover 60-80% of the sectors total market size, depending on sector. The data of the rest of the firms, i.e. private sector organizations, in the sectors is not usually publicly available. Therefore, those firms were excluded from this study

After defining the main competitors, *the framework for the financial analysis of the industry was composed.* Industry analysis and competitor analysis have become increasingly important in the business arena since the early 1980s. Their intellectual origins can be attributed to Micheal Porter, who in 1980 introduced the five forces framework to analyze industries and sectors. With this work Porter pulled together and further developed much of the thinking about what influences the profitability of an organization in a competitive situation. The profitability is influenced by two factors. First, the intensity of competition determines industry's profit potential. This can manifest itself in two forms: price competition and market share competition. Second, the bargaining power of both buyers and suppliers affects the actual profits levels, where profit potential is measured in terms of return on investment. The fundamental basis of above-average performance in the long-run is sustainable competitive advantage. For creating this defendable position in the long run and outperforming competitors in the industry, Porter (1980, 1985) has identified three internally consistent generic strategies for achieving above-average performance in the industry: cost leadership, differentiation, and focus. The focus strategy has two variants, cost focus and differentiation focus. These strategies are based on the company's environment, strategic position, and the analysis on the five competitive forces.

We used the return on investment (ROI) as a starting point for analysing firms' and industry's performance. Further decomposition of ROI led us to the three factors: (i) profitability (or net profit margin), (ii) efficiency (total asset turnover), and (iii) leverage. This decomposition gave an approach, which was utilized in the evaluation of industry's performance. By using this analysis, the impact of (i) operating management on profitability, (ii) investment management on efficiency, and (iii) financial management on financial leverage was evaluated.

After structuring the framework for financial analysis, we moved to the empirical research. There we found that FW/VPN sector is the biggest sector in the industry, and more at mature phase than the other two. Even the operators here are relatively large organization, having a strong bargaining power over their suppliers, the high degree of competition is reducing the price premium. Therefore, we concluded that the profitability in this sector is weak. Efficiency is also weak in FW/VPN sector. On average, the firms operating in the sector have the heaviest balance sheets in relation to sales. We clearly concluded that FW/VPN sector is the least favourable sector to enter due to low profitability and low efficiency. Concerning the financial management, this sector has strongest short-term liquidity. We can say that on average, FW/VPN will not be facing any solvency problems in the near future.

According to the study, IDS sector is the mid-way sector in the internet security industry. Competition is not as fierce as in FW/VPN sector, and thus, it is not decreasing the price premiums. IDS is a growing sector, where is still room for every competitor operating in it. Both profitability and efficiency ratios have stayed stable during the review period. SCM sector has the best debt position in the industry, and the firms operating in it have managed to control their indebtedness most efficiently. Thus, on average the firms are having more equity than debt capital in their balance sheets. This clearly lowers the risk of bankruptcy.

We found that SCM has the best profitability in the industry. Like IDS, this sector is facing the growth phase. Therefore, the firms are still relatively small and the price

competition does not occur. The rise in sales levels during the period made SCM also the most efficient sector. This indicates that this sector is the most favourable to enter. The sector is most heavily in debt, and especially the role of short-term liabilities as a source of financing has become more central. On average, the firms operating in SCM sector are small and still growing, but also most likely to face solvency problems in the future.

Altogether low sales levels have decreased the profitability throughout the industry. Efficiency is also weak in the industry. This is partly a result from the weak sales levels, but also due to heavy balance sheets. However, most of the assets are compounded of current assets. We think this reflects the precautionary measures arising from the poor economic conditions. These facts indicate that, on average, the firms throughout the industry are implementing differentiation strategy in their operations.

Despite the hard times in world economy, we found that organizations are mainly on healthy basis, and that they have managed to improve their performance, even tough the profitability has suffered . Big players firms have maintained their results positive, due to the diversified businesses, cash flows from other operations and economies of scale. However, smaller businesses operating only in the internet security industry have enhanced their operating performance and with this trend the outlook looks promising.

When planning the research strategy of this study, the problems of validity were considered. The framework composed in the study is based on the decomposition of return on investment. Thus, theoretical discussion covered in the study is easy to generalize. The collected data was received from the official financial statements, in the form which is regulated by the US Securities and Exchange Commission. Therefore, data from other industries and other firms can be collected in the same form, and processed by using the same framework.

In order to be confident with the reliability of the empirical results, the collected data was carefully documented and processed. Because the data is from publicly available sources, the financial information is corporate level information. Thus, with some of the firms covered in the study the data can be biased because the corporate level information includes also other operations than those in the internet security industry. However, we can see that the aim of the study is not just examine the certain businesses, but rather the organizations at the corporate level. An effort was made to report the procedure accurately in order that it can be repeated in the same way based on the documentation of this report.

The purpose of this research has been to carry out a suggestion of how an organization can make sense of the competitive environment, and process financial information from the related industry as a part of the strategic management process. This study does not, however, provide a detailed tool for management to plan and organize intelligence activities in an efficient manner. More likely produces a framework, which aims to enhance understanding of process itself, and its role in strategic management.

An interesting subject for further studies would be to examine, how the competitor and industry information are implemented to the management process; and how the effective implementation affects the overall performance. It would be also good to examine how this process could be enhanced, and at what cost. It is good to remember, that from the organization's point of view, the cost of additional information acquired should be taken into account.

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The data for the financial information of the firms covered in the study:

http://www.sec.gov/edgar/searchedgar/companysearch.html
(U.S. Securities and Exchange Commission, EDGAR database for company information)

http://www.nasdaq.com

http://www.infonetics.com

http://www.idc.com

APPENDIX 1

Financial information

Aladdin

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	2 395	2 634	1 754	3 386	2 249	1 652	1 569	2 157	1 432	1 673	1 943	2 409	2 024
Gross margin	2 063	2 292	1 492	2 667	1 618	1 429	1 310	1 740	1 307	1 506	1 743	2 156	1 722
Gross margin-%	86 %	87 %	85 %	79 %	72 %	87 %	83 %	81 %	91 %	90 %	90 %	89 %	85 %
R&D	610	599	687	481	675	570	535	508	472	436	463	546	584
R&D-%	25 %	23 %	39 %	14 %	30 %	35 %	34 %	24 %	33 %	26 %	24 %	23 %	29 %
Sales&Marketing	1 229	1 285	1 157	1 377	1 107	997	891	819	779	696	722	942	1 000
Sales&Marketing-%	51 %	49 %	66 %	41 %	49 %	60 %	57 %	38 %	54 %	42 %	37 %	39 %	49 %
Operating expenses	2 270	2 303	2 143	2 286	2 131	1 842	1 685	1 553	1 520	1 362	1 404	1 808	2 013
OPEX %	95 %	87 %	122 %	68 %	95 %	112 %	107 %	72 %	106 %	81 %	72 %	75 %	99 %
Operating profit	-207	-11	-651	381	-513	-413	-375	187	-213	144	339	348	-291
OP %	-9 %	0 %	-37 %	11 %	-23 %	-25 %	-24 %	9 %	-15 %	9 %	17 %	14 %	-14 %
Acc.rec	1 077	897	699	1 591	909	733	660	916	548	778	875	973	963
Inventories	126	141	126	313	207	170	97	40	40	40	36	89	73
Current assets	2 730	2 301	1 710	2 438	1 725	1 392	1 190	1 396	1 068	1 322	1 585	1 959	1 637
Acc.payable	497	541	359	709	294	475	299	489	289	452	292	606	630
Current liabilities	1 218	1 275	1 109	1 441	870	902	993	942	769	873	759	1 495	1 550
Shareholders equity	2 201	2 266	1 833	2 152	1 682	1 270	890	1 010	817	973	1 309	2 194	1 901
Assets	3 513	3 627	3 021	3 740	2 683	2 286	1 979	2 031	1 649	1 894	2 100	4 029	3 709

Avaya

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	1 820	1 877	2 016	1 785	1 852	1 714	1 442	1 306	1 279	1 219	1 152	1 067	1 081
Gross margin	773	821	823	797	819	731	589	517	506	481	442	423	456
Gross margin-%	42 %	44 %	41 %	45 %	44 %	43 %	41 %	40 %	40 %	39 %	38 %	40 %	42 %
R&D	119	126	118	140	153	135	108	120	119	115	105	93	94
R&D-%	7 %	7 %	6 %	8 %	8 %	8 %	7 %	9 %	9 %	9 %	9 %	9 %	9 %
Sales&Marketing	577	625	673	608	556	482	446	418	407	377	343	345	348
Sales&Marketing-%	32 %	33 %	33 %	34 %	30 %	28 %	31 %	32 %	32 %	31 %	30 %	32 %	32 %
Operating expenses	696	751	791	748	922	684	554	538	526	492	448	438	442
OPEX %	38 %	40 %	39 %	42 %	50 %	40 %	38 %	41 %	41 %	40 %	39 %	41 %	41 %
Operating profit	77	70	32	49	-103	47	35	-24	-20	-11	-6	-14	14
OP %	4 %	4 %	2 %	3 %	-6 %	3 %	2 %	-2 %	-2 %	-1 %	-1 %	-1 %	1 %
Acc.rec	NA	NA	1 719	1 647	1 452	1 203	1 185	906	975	1 116	876	750	726
Inventories	NA	NA	639	688	747	685	649	627	586	527	467	432	412
Current assets	NA	NA	3 327	3 544	3 189	2 956	2 769	2 503	2 759	2 519	2 303	2 224	2 244
Acc.payable	NA	NA	763	744	569	485	624	447	403	375	374	290	380
Current liabilities	NA	NA	2 513	2 431	2 092	1 866	2 018	1 829	1 527	1 389	1 252	1 199	1 240
Shareholders equity	NA	NA	725	852	782	803	481	452	998	1 017	10	1	-50
Assets	NA	NA	5 002	5 271	4 969	4 716	4 648	4 421	4 656	4 471	3 897	3 743	3 686

Bindview

$000S	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	16 025	20 350	23 533	26 148	17 017	17 518	16 663	19 690	16 805	15 003	15 944	19 226	13 047
Gross margin	14 837	18 780	22 044	24 223	15 170	15 309	14 926	18 017	15 079	13 552	14 368	17 697	11 499
Gross margin-%	93 %	92 %	94 %	93 %	89 %	87 %	90 %	92 %	90 %	90 %	90 %	92 %	88 %
R&D	6 260	6 571	6 479	7 190	5 930	5 472	5 623	5 643	5 019	4 949	4 951	4 300	4 235
R&D-%	39 %	32 %	28 %	27 %	35 %	31 %	34 %	29 %	30 %	33 %	31 %	22 %	32 %
Sales&Marketing	9 359	9 984	11 977	13 426	12 958	14 253	11 371	10 497	10 363	9 515	8 732	8 632	7 758
Sales&Marketing-%	58 %	49 %	51 %	51 %	76 %	81 %	68 %	53 %	62 %	63 %	55 %	45 %	59 %
Operating expenses	18 046	19 275	20 683	23 022	21 568	25 194	20 777	18 808	17 291	16 373	15 633	15 096	13 770
OPEX %	113 %	95 %	88 %	88 %	127 %	144 %	125 %	96 %	103 %	109 %	98 %	79 %	106 %
Operating profit	-3 209	-495	1 361	1 201	-6 398	-9 885	-5 851	-791	-2 212	-2 821	-1 265	2 601	-2 271
OP %	-20 %	-2 %	6 %	5 %	-38 %	-56 %	-35 %	-4 %	-13 %	-19 %	-8 %	14 %	-17 %
Acc.rec	10 431	13 036	17 693	23 729	13 795	11 670	9 259	10 344	7 825	8 295	9 331	11 199	7 463
Inventories	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current assets	99 455	94 511	98 607	83 741	68 406	61 296	52 397	54 568	54 389	52 998	49 722	51 011	46 319
Acc.payable	4 714	2 134	2 142	4 045	559	745	1 182	1 619	2 211	3 549	2 536	1 990	997
Current liabilities	22 452	16 776	18 350	19 258	14 262	16 761	21 859	21 118	21 896	23 086	23 526	24 702	21 654
Shareholders equity	93 319	100 279	101 512	92 261	83 776	75 873	63 126	63 809	63 218	41 487	37 200	35 426	33 322
Assets	115 771	117 055	121 587	113 034	100 220	94 385	86 664	88 121	87 990	66 909	62 879	63 556	58 212

Checkpoint

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Net revenues	78 166	90 668	116 014	140 435	145 010	142 071	118 032	122 530	104 583	108 587	103 559	110 260	107 847
Gross Profit	70 522	82 662	106 607	130 227	134 932	135 607	112 664	117 869	99 968	103 698	97 883	104 747	102 734
Gross margin%	90 %	91 %	92 %	93 %	93 %	95 %	95 %	96 %	96 %	95 %	95 %	95 %	95 %
R&D	6 175	6 659	8 344	9 131	9 320	9 049	7 511	7 341	7 399	7 383	6 988	6 939	6 858
R&D-%	8 %	7 %	7 %	7 %	6 %	6 %	6 %	6 %	7 %	7 %	7 %	6 %	6 %
Sales&Marketing	24 218	27 733	28 467	29 585	30 382	28 714	23 500	26 490	25 033	27 865	24 625	27 083	26 688
SalesMarketing-%	31 %	31 %	25 %	21 %	21 %	20 %	20 %	22 %	24 %	26 %	24 %	25 %	25 %
Operating expenses	35 592	38 894	41 905	44 330	46 240	43 908	35 888	38 273	37 269	39 612	35 828	44 088	43 003
OPEX %	46 %	43 %	36 %	32 %	32 %	31 %	30 %	31 %	36 %	36 %	35 %	40 %	40 %
Operating income	34 930	43 768	64 702	85 897	88 692	91 699	76 776	79 596	62 699	64 086	62 055	66 172	59 731
OP %	45 %	48 %	56 %	61 %	61 %	65 %	65 %	65 %	60 %	59 %	60 %	60 %	55 %
Acc.rec	57 042	64 262	78 114	84 381	86 597	86 889	77 101	74 294	62 699	59 315	65 155	73 165	59 083
Inventories	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current assets	389 590	484 272	556 399	540 408	595 271	971 520	1 038 845	1 123 901	1 191 578	1 262 705	1 331 927	1 406 271	1 473 169
Acc.payable	64 456	81 132	92 960	105 988	120 156	130 520	127 921	131 477	130 598	134 556	133 420	135 418	129 078
Current liabilities	136 877	174 293	198 341	227 190	243 531	240 167	224 237	227 180	225 347	229 180	228 036	234 645	230 795
Shareholders equity	344 389	380 811	451 048	549 283	650 493	750 016	829 615	915 728	984 626	1 051 562	1 121 087	1 187 042	1 257 893
Assets	473 374	556 136	650 429	777 639	894 024	992 160	1 057 852	1 142 908	1 209 973	1 280 742	1 349 123	1 421 687	1 487 688

Cisco

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	4 919 000	5 720 000	6 519 000	6 748 000	4 728 000	4 298 000	4 448 000	4 816 000	4 822 000	4 829 000	4 845 000	4 713 000	4 618 000
Gross margin	3 172 000	3 662 000	4 141 000	4 167 000	2 577 000	2 249 000	2 402 000	2 775 000	3 041 000	3 270 000	3 358 000	3 317 000	3 269 000
Gross margin-%	64 %	64 %	64 %	62 %	55 %	52 %	54 %	58 %	63 %	68 %	69 %	70 %	71 %
R&D	717 000	825 000	934 000	981 000	970 000	893 000	875 000	822 000	807 000	797 000	789 000	798 000	703 000
R&D-%	15 %	14 %	14 %	15 %	21 %	21 %	20 %	17 %	17 %	17 %	16 %	17 %	15 %
Sales&Marketing	1 024 000	1 142 000	1 350 000	1 419 000	1 333 000	1 138 000	1 086 000	1 064 000	1 057 000	1 028 000	1 093 000	972 000	1 019 000
Sales&Marketing-%	21 %	20 %	21 %	21 %	28 %	26 %	24 %	22 %	22 %	21 %	23 %	21 %	22 %
Operating expenses	1 895 000	2 147 000	2 477 000	2 594 000	2 494 000	2 221 000	2 111 000	2 032 000	2 027 000	1 977 000	2 033 000	2 053 000	1 903 000
OPEX %	38 %	38 %	38 %	38 %	53 %	52 %	47 %	42 %	42 %	41 %	42 %	44 %	41 %
Operating profit	1 277 000	1 515 000	1 664 000	1 573 000	83 000	28 000	291 000	743 000	1 014 000	1 293 000	1 325 000	1 264 000	1 366 000
OP %	26 %	26 %	26 %	23 %	2 %	1 %	7 %	15 %	21 %	27 %	27 %	27 %	30 %
Acc.rec	1 922 000	2 299 000	2 887 000	3 512 000	1 983 000	1 466 000	1 181 000	1 150 000	990 000	1 105 000	1 109 000	1 107 000	1 157 000
Inventories	878 000	1 232 000	1 956 000	2 533 000	1 913 000	1 684 000	1 301 000	1 023 000	869 000	880 000	828 000	775 000	765 000
Current assets	9 080 000	11 110 000	13 059 000	12 912 000	12 076 000	12 835 000	13 021 000	12 765 000	13 610 000	17 433 000	15 096 000	14 289 000	12 621 000
Acc.payable	700 000	739 000	999 000	942 000	664 000	644 000	459 000	371 000	436 000	470 000	540 000	518 000	480 000
Current liabilities	5 099 000	5 196 000	5 802 000	6 335 000	7 675 000	8 096 000	7 319 000	7 753 000	7 980 000	8 375 000	7 871 000	8 064 000	7 795 000
Shareholders equity	20 026 000	26 497 000	27 641 000	29 498 000	26 093 000	27 120 000	27 450 000	28 143 000	28 419 000	28 656 000	28 546 000	28 455 000	27 645 000
Assets	26 085 000	32 870 000	34 152 000	35 881 000	33 790 000	35 238 000	35 540 000	36 704 000	37 126 000	37 795 000	37 198 000	37 346 000	36 256 000

Computer Associates

$000S	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	1 464 000	1 137 000	1 545 000	783 000	733 000	713 000	734 000	749 000	772 000	765 000	772 000	778 000	801 000
Gross margin	NA	1 137 000	1 545 000	783 000	270 000	633 000	661 000	684 000	707 000	706 000	713 000	718 000	742 000
Gross margin-%	NA	NA	NA	NA	NA	89 %	90 %	91 %	92 %	92 %	92 %	92 %	93 %
R&D	156 000	170 000	179 000	172 000	174 000	173 000	171 000	165 000	169 000	165 000	165 000	166 000	168 000
R&D-%	11 %	15 %	12 %	22 %	24 %	24 %	23 %	22 %	22 %	22 %	21 %	21 %	21 %
Sales&Marketing	84 000	680 000	645 000	624 000	616 000	572 000	542 000	457 000	366 000	381 000	373 000	361 000	348 000
Sales&Marketing-%	6 %	60 %	42 %	80 %	84 %	80 %	74 %	61 %	47 %	50 %	48 %	46 %	43 %
Operating expenses	179 000	850 000	824 000	796 000	790 000	745 000	713 000	622 000	535 000	546 000	538 000	527 000	516 000
OPEX %	12 %	75 %	53 %	102 %	108 %	104 %	97 %	83 %	69 %	71 %	70 %	68 %	64 %
Operating profit	1 285 000	287 000	721 000	-13 000	-520 000	-112 000	-52 000	62 000	172 000	160 000	175 000	191 000	226 000
OP %	88 %	25 %	47 %	-2 %	-71 %	-16 %	-7 %	8 %	22 %	21 %	23 %	25 %	28 %
Acc.rec	2 175 000	1 712 000	2 059 000	1 772 000	2 102 000	1 254 000	1 181 000	1 157 000	1 825 000	1 564 000	1 445 000	1 617 000	1 854 000
Inventories	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current assets	3 992 000	2 578 000	2 671 000	2 457 000	2 643 000	2 018 000	1 809 000	1 920 000	3 061 000	2 433 000	2 282 000	2 688 000	3 565 000
Acc.payable	232 000	NA	NA	NA	NA	NA	NA	NA	208 000	NA	NA	NA	207 000
Current liabilities	3 004 000	2 685 000	2 837 000	2 467 000	2 286 000	2 368 000	2 295 000	2 698 000	2 321 000	3 143 000	2 988 000	2 669 000	2 974 000
Shareholders equity	7 037 000	6 852 000	6 700 000	6 221 000	5 780 000	5 434 000	5 159 000	4 894 000	4 617 000	4 635 000	4 536 000	4 452 000	4 363 000
Assets	17 493 000	16 064 000	15 979 000	15 046 000	14 143 000	13 025 000	12 449 000	11 921 000	12 226 000	11 425 000	11 036 000	11 025 000	11 054 000

Elron

$000S	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	9 339	10 131	9 875	9 817	9 603	10 249	6 568	6 439	5 906	5 856	5 746	5 960	5 591
Gross margin	3 517	3 989	1 934	3 199	2 767	3 300	2 252	2 492	2 886	3 047	2 300	3 678	3 111
Gross margin-%	38 %	39 %	20 %	33 %	29 %	32 %	34 %	39 %	49 %	52 %	40 %	62 %	56 %
R&D	1 281	1 643	2 020	2 841	2 345	2 454	2 118	2 062	1 921	2 259	2 290	1 348	2 089
R&D-%	14 %	16 %	20 %	29 %	24 %	24 %	32 %	32 %	33 %	39 %	40 %	23 %	37 %
Sales&Marketing	2 500	4 053	4 035	4 122	3 181	2 435	2 470	2 501	2 439	2 806	4 627	4 556	5 134
Sales&Marketing-%	27 %	40 %	41 %	42 %	33 %	24 %	38 %	39 %	41 %	48 %	81 %	76 %	92 %
Operating expenses	6 784	8 632	9 883	10 936	9 022	7 550	7 195	7 609	6 721	7 854	10 133	8 810	10 495
OPEX %	73 %	85 %	100 %	111 %	94 %	74 %	110 %	118 %	114 %	134 %	176 %	148 %	188 %
Operating profit	-3 267	-4 643	-7 949	-7 737	-6 255	-4 250	-4 943	-5 117	-3 835	-4 807	-7 833	-5 132	-7 384
OP %	-35 %	-46 %	-80 %	-79 %	-65 %	-41 %	-75 %	-79 %	-65 %	-82 %	-136 %	-86 %	-132 %
Acc.rec	NA	NA	NA	11 955	13 128	12 432	11 458	9 627	9 327	12 659	9 878	9 238	6 489
Inventories	NA	NA	NA	361	139	326	384	1 671	1 616	1 989	2 063	2 197	2 581
Current assets	NA	NA	NA	133 144	116 283	125 665	117 887	121 799	120 844	131 343	117 561	87 044	79 128
Acc.payable	NA	NA	NA	3 080	2 364	3 143	2 792	4 515	3 366	23 778	5 696	5 738	4 164
Current liabilities	NA	NA	NA	41 478	51 990	49 500	48 761	30 453	27 904	93 433	85 770	55 253	50 981
Shareholders equity	NA	NA	NA	280 043	260 483	251 331	237 964	248 172	225 290	292 089	280 003	266 517	255 365
Assets	NA	NA	NA	370 345	348 630	336 800	321 417	339 024	313 400	441 040	421 424	401 329	385 831

Enterasys

$000S	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	381 768	275 064	261 434	248 939	286 016	306 898	240 181	139 253	120 766	120 766	122 731	121 238	104 457
Gross margin	171 366	121 505	122 243	123 943	145 412	158 817	110 011	7 305	48 320	48 320	59 059	42 295	52 950
Gross margin-%	45 %	44 %	47 %	50 %	51 %	52 %	46 %	5 %	40 %	40 %	48 %	35 %	51 %
R&D	42 302	40 499	34 970	35 145	35 520	39 320	21 613	24 214	25 537	25 537	19 696	20 031	19 967
R&D-%	11 %	15 %	13 %	14 %	12 %	13 %	9 %	17 %	21 %	21 %	16 %	17 %	19 %
Sales&Marketing	101 654	118 915	118 217	112 860	121 751	118 303	133 252	83 457	65 628	65 628	60 400	52 764	44 668
Sales&Marketing-%	27 %	43 %	45 %	45 %	43 %	39 %	55 %	60 %	54 %	54 %	49 %	44 %	43 %
Operating expenses	143 956	159 414	153 187	148 005	157 271	157 623	154 865	107 671	91 165	91 165	80 096	72 795	66 372
OPEX %	38 %	58 %	59 %	59 %	55 %	51 %	64 %	77 %	75 %	75 %	65 %	60 %	64 %
Operating profit	27 410	-37 909	-30 944	-24 062	-11 859	1 194	-44 854	-100 366	-42 845	-42 845	-21 037	-30 500	-13 422
OP %	7 %	-14 %	-12 %	-10 %	-4 %	0 %	-19 %	-72 %	-35 %	-35 %	-17 %	-25 %	-13 %
Acc.rec	228 372	192 584	168 508	171 342	210 862	205 222	168 304	46 885	67 698	49 821	47 473	41 683	39 433
Inventories	85 016	89 297	84 934	89 024	98 183	97 396	80 725	127 712	118 214	112 887	79 807	44 552	41 872
Current assets	1 007 373	918 347	959 354	967 927	1 322 166	1 147 691	745 669	593 023	458 711	512 686	363 681	360 389	255 547
Acc.payable	117 631	74 959	76 312	97 278	91 351	70 413	40 453	37 847	68 110	64 777	31 074	47 589	37 252
Current liabilities	559 205	518 408	489 762	518 848	420 853	291 900	232 463	234 903	324 387	338 646	233 088	332 090	228 125
Shareholders equity	2 147 439	1 500 750	1 327 693	1 084 974	1 290 035	1 308 880	937 790	751 747	329 704	352 727	272 052	245 950	234 948
Assets	3 166 507	2 083 844	1 919 634	1 693 570	1 912 109	1 749 674	1 239 263	1 062 797	716 722	771 038	598 455	578 040	463 073

F-Secure

euro000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	8 100	9 800	10 900	12 400	10 000	10 700	9 900	11 128	10 000	9 100	9 600	9 900	9 100
Gross margin	6 800	8 400	9 500	10 400	8 400	9 100	8 500	9 980	8 800	7 900	8 300	8 900	8 100
Gross margin-%	84 %	86 %	87 %	84 %	84 %	85 %	86 %	90 %	88 %	87 %	86 %	90 %	89 %
R&D	2 900	3 200	3 000	3 700	3 400	3 400	2 600	3 046	2 600	2 500	2 400	2 300	2 300
R&D-%	36 %	33 %	28 %	30 %	34 %	32 %	26 %	27 %	26 %	27 %	25 %	23 %	25 %
Sales&Marketing	7 800	7 800	6 600	9 200	8 800	8 800	7 700	6 982	6 100	6 000	5 600	5 600	5 500
Sales&Marketing-%	96 %	80 %	61 %	74 %	88 %	82 %	78 %	63 %	61 %	66 %	58 %	57 %	60 %
Operating expenses	11 800	12 200	10 400	14 000	13 200	13 200	11 200	10 875	9 600	9 300	8 600	8 500	8 500
OPEX %	146 %	124 %	95 %	113 %	132 %	123 %	113 %	98 %	96 %	102 %	90 %	86 %	93 %
Operating profit	-5 000	-3 800	-900	-3 600	-4 800	-4 100	-2 700	-895	-800	-1 400	-300	400	-400
OP %	-62 %	-39 %	-8 %	-29 %	-48 %	-38 %	-27 %	-8 %	-8 %	-15 %	-3 %	4 %	-4 %
Acc.rec	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inventories	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current assets	59 300	55 800	52 200	52 300	47 200	55 800	41 400	44 400	43 900	44 100	44 100	46 900	46 400
Acc.payable	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current liabilities	17 900	16 600	16 600	18 800	17 900	17 500	17 600	19 500	19 600	20 200	19 900	21 000	20 300
Shareholders equity	38 200	39 200	40 000	37 200	33 000	29 500	27 900	27 400	26 800	25 900	25 800	26 800	26 900
Assets	63 900	61 200	58 700	58 800	52 900	48 900	47 400	48 800	48 300	48 100	47 700	49 800	49 100

Harris STAT

$000S	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	455 200	512 400	460 400	486 900	479 300	528 500	443 400	451 500	483 300	576 900	450 200	523 900	538 900
Gross margin	112 600	131 100	124 800	124 400	126 700	148 100	112 600	117 700	129 000	164 700	114 900	135 200	134 000
Gross margin-%	25 %	26 %	27 %	26 %	26 %	28 %	25 %	26 %	27 %	29 %	26 %	26 %	25 %
R&D	10 700	0	73 500	0	0	0	0	0	0	73 500	0	0	0
R&D-%	2 %	0 %	16 %	0 %	0 %	0 %	0 %	0 %	0 %	13 %	0 %	0 %	0 %
Sales&Marketing (*)	108 300	109 900	100 800	95 700	104 800	113 100	99 600	97 500	99 300	118 000	96 800	108 900	97 600
Sales&Marketing-%	24 %	21 %	22 %	20 %	22 %	21 %	22 %	22 %	21 %	20 %	22 %	21 %	18 %
Operating expenses	119 000	109 900	174 300	95 700	104 800	113 100	99 600	97 500	99 300	191 500	96 800	108 900	97 600
OPEX %	26 %	21 %	38 %	20 %	22 %	21 %	22 %	22 %	21 %	33 %	22 %	21 %	18 %
Operating profit	-6 400	21 200	-49 500	28 700	21 900	35 000	13 000	20 200	29 700	-26 800	18 100	26 300	36 400
OP %	-1 %	4 %	-11 %	6 %	5 %	7 %	3 %	4 %	6 %	-5 %	4 %	5 %	7 %
Acc.rec	456 600	466 500	460 200	449 700	450 400	451 600	404 000	453 500	418 600	380 300	366 800	372 700	381 700
Inventories	197 800	197 200	215 300	220 500	247 500	267 700	263 100	257 500	250 600	233 200	231 900	229 400	236 900
Current assets	1 687 800	1 629 000	1 382 100	1 202 600	1 172 800	1 222 000	1 151 000	1 182 200	1 153 800	1 153 500	1 264 700	1 300 900	1 325 600
Acc.payable	119 500	109 500	115 500	102 100	123 600	125 500	98 200	77 200	89 700	99 200	99 800	106 100	120 900
Current liabilities	536 400	555 900	536 700	589 900	490 100	460 300	388 400	357 800	386 600	425 600	418 400	443 900	457 800
Shareholders equity	1 403 200	1 374 300	1 227 400	1 087 200	1 050 400	1 115 200	1 098 800	1 124 100	1 134 200	1 149 900	1 151 400	1 162 800	1 183 400
Assets	2 383 300	2 326 900	2 149 900	1 962 200	1 925 100	1 959 900	1 870 900	1 865 400	1 833 900	1 858 500	1 972 100	2 008 600	2 043 300

(*) engineering, selling & admin.

Intrusion Inc

$000S	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	6 996	5 123	6 456	4 635	5 318	4 451	3 612	3 304	2 514	1 465	2 394	1 461	1 476
Gross margin	1 964	773	1 410	154	819	54	1 258	1 064	805	323	1 072	-513	472
Gross margin-%	28 %	15 %	22 %	3 %	15 %	1 %	35 %	32 %	32 %	22 %	45 %	-35 %	32 %
R&D	2 959	3 445	3 488	3 181	4 282	3 257	2 933	2 077	1 879	1 485	1 398	1 326	923
R&D-%	42 %	67 %	54 %	69 %	81 %	73 %	81 %	63 %	75 %	101 %	58 %	91 %	63 %
Sales&Marketing	5 412	7 048	7 571	7 709	8 008	6 518	4 597	4 427	3 902	3 197	2 507	2 183	1 863
Sales&Marketing-%	77 %	138 %	117 %	166 %	151 %	146 %	127 %	134 %	155 %	218 %	105 %	149 %	126 %
Operating expenses	9 584	12 073	12 480	12 541	14 097	10 778	8 424	7 281	6 490	5 297	4 598	4 068	3 188
OPEX %	137 %	236 %	193 %	271 %	265 %	242 %	233 %	220 %	258 %	362 %	192 %	278 %	216 %
Operating profit	-7 620	-11 300	-11 070	-12 387	-13 278	-10 724	-7 166	-6 217	-5 685	-4 974	-3 526	-4 581	-2 716
OP %	-109 %	-221 %	-171 %	-267 %	-250 %	-241 %	-198 %	-188 %	-226 %	-340 %	-147 %	-314 %	-184 %
Acc.rec	10 370	6 224	7 679	6 887	7 746	6 409	5 657	5 206	4 122	3 309	3 143	2 363	1 556
Inventories	15 131	12 875	9 160	8 359	5 387	4 259	5 617	5 016	4 149	3 415	2 699	1 411	1 726
Current assets	101 466	74 311	72 403	64 276	60 410	41 853	39 914	34 037	28 761	23 682	19 996	15 256	12 323
Acc.payable	11 353	8 491	9 426	9 884	14 160	7 007	6 819	6 000	5 955	4 325	3 679	2 905	2 905
Current liabilities	30 554	17 988	15 087	11 762	16 501	9 959	9 428	8 797	7 383	5 777	5 622	4 555	4 555
Shareholders equity	91 749	85 542	87 185	78 787	66 331	46 944	40 322	33 498	28 161	23 502	19 763	12 385	12 384
Assets	122 313	105 110	104 032	92 414	82 856	56 926	49 772	42 295	35 544	29 761	25 385	16 939	16 939

ISS

$000S	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	39 291	44 217	51 787	59 680	61 155	51 710	52 734	57 960	58 377	60 031	61 768	63 109	59 453
Gross margin	27 303	31 178	35 378	41 692	42 773	34 646	38 545	43 448	43 541	45 325	47 074	49 524	45 664
Gross margin-%	69 %	71 %	68 %	70 %	70 %	67 %	73 %	75 %	75 %	76 %	76 %	78 %	77 %
R&D	6 802	7 566	8 449	8 499	8 315	8 940	9 276	8 882	8 607	8 821	8 692	9 160	9 671
R&D-%	17 %	17 %	16 %	14 %	14 %	17 %	18 %	15 %	15 %	15 %	14 %	15 %	16 %
Sales&Marketing	14 284	15 658	17 406	20 684	21 634	23 913	23 449	23 005	22 687	23 902	23 780	23 310	21 176
Sales&Marketing-%	36 %	35 %	34 %	35 %	35 %	46 %	44 %	40 %	39 %	40 %	38 %	37 %	36 %
Operating expenses	23 970	26 715	29 284	33 860	34 460	37 938	38 234	37 224	36 738	39 555	38 390	38 547	36 387
OPEX %	61 %	60 %	57 %	57 %	56 %	73 %	73 %	64 %	63 %	66 %	62 %	61 %	61 %
Operating profit	3 333	4 463	6 094	7 832	8 313	-3 292	311	6 224	6 803	5 770	8 684	10 977	9 277
OP %	8 %	10 %	12 %	13 %	14 %	-6 %	1 %	11 %	12 %	10 %	14 %	17 %	16 %
Acc.rec	31 163	38 092	42 524	56 358	55 633	54 478	58 334	50 259	52 374	55 767	63 102	56 700	50 307
Inventories	707	571	1 392	2 275	1 102	1 417	2 128	1 768	1 703	2 156	2 273	1 055	596
Current assets	163 600	173 616	187 003	196 498	214 467	210 210	246 653	221 212	230 105	238 787	250 146	267 071	276 023
Acc.payable	4 197	2 798	6 489	4 200	8 336	9 884	3 157	3 553	2 234	2 103	2 803	1 765	3 836
Current liabilities	31 440	36 151	43 682	51 365	57 411	70 820	65 694	72 132	73 272	70 596	75 486	79 684	76 770
Shareholders equity	162 041	168 314	177 608	188 389	207 214	434 923	439 244	426 935	435 397	445 664	453 115	464 556	472 281
Assets	193 738	204 632	221 534	240 240	265 037	506 140	506 456	500 984	510 498	518 069	530 891	546 568	551 698

Lucent

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	7 230 000	7 412 000	4 939 000	4 346 000	5 915 000	5 819 000	5 214 000	3 579 000	3 516 000	2 949 000	2 277 000	2 075 000	2 403 000
Gross margin	2 939 000	3 134 000	1 521 000	681 000	499 000	814 000	64 000	435 000	802 000	651 000	-336 000	454 000	762 000
Gross margin-%	41 %	42 %	31 %	16 %	8 %	14 %	1 %	12 %	23 %	22 %	-15 %	22 %	32 %
R&D	844 000	801 000	926 000	621 000	970 000	793 000	1 136 000	621 000	524 000	480 000	685 000	389 000	382 000
R&D-%	12 %	11 %	19 %	14 %	16 %	14 %	22 %	17 %	15 %	16 %	30 %	19 %	16 %
Sales&Marketing (*)	1 309 000	1 304 000	773 000	1 245 000	2 148 000	2 046 000	1 971 000	1 245 000	876 000	871 000	977 000	396 000	491 000
Sales&Marketing-%	18 %	18 %	16 %	29 %	36 %	35 %	38 %	35 %	25 %	30 %	43 %	19 %	20 %
Operating expenses	2 153 000	2 105 000	1 699 000	1 866 000	3 118 000	2 839 000	3 107 000	1 866 000	1 400 000	1 351 000	1 662 000	785 000	873 000
OPEX %	30 %	28 %	34 %	43 %	53 %	49 %	60 %	52 %	40 %	46 %	73 %	38 %	36 %
Operating profit	786 000	1 029 000	-178 000	-1 185 000	-2 619 000	-2 025 000	-3 043 000	-1 431 000	-598 000	-700 000	-1 998 000	-331 000	-111 000
OP %	11 %	14 %	-4 %	-27 %	-44 %	-35 %	-58 %	-40 %	-17 %	-24 %	-88 %	-16 %	-5 %
Acc.rec	10 573 000	10 101 000	9 558 000	7 286 000	6 136 000	4 618 000	4 594 000	3 204 000	2 837 000	2 245 000	1 647 000	1 466 000	1 542 000
Inventories	5 321 000	4 936 000	5 677 000	6 879 000	6 119 000	5 059 000	3 646 000	2 731 000	2 413 000	1 981 000	1 363 000	1 093 000	965 000
Current assets	22 414 000	20 581 000	21 490 000	22 909 000	18 819 000	16 965 000	16 103 000	14 371 000	14 709 000	11 166 000	9 155 000	8 243 000	7 741 000
Acc.payable	2 518 000	2 916 000	2 813 000	2 628 000	2 055 000	1 896 000	1 844 000	1 263 000	1 483 000	1 245 000	1 298 000	1 114 000	1 179 000
Current liabilities	9 292 000	8 187 000	10 877 000	12 473 000	12 044 000	10 554 000	10 169 000	7 732 000	6 882 000	6 716 000	6 326 000	5 547 000	5 522 000
Shareholders equity	17 582 000	26 130 000	26 172 000	25 748 000	22 060 000	19 825 000	11 023 000	10 627 000	10 064 000	920 000	-4 734 000	-4 342 000	-3 870 000
Assets	39 997 000	46 340 000	48 792 000	50 041 000	44 127 000	39 839 000	33 664 000	30 199 000	30 346 000	21 361 000	17 791 000	16 435 000	15 723 000

(*)selling, general, admin.

N2H2

$000S	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	2 925	3 324	2 467	2 485	1 890	2 015	2 731	2 893	2 672	2 991	2 579	3 027	3 097
Gross margin	1 322	1 265	691	1 487	375	836	1 207	2 047	1 843	2 139	1 724	2 429	2 527
Gross margin-%	45 %	38 %	28 %	60 %	20 %	41 %	44 %	71 %	69 %	72 %	67 %	80 %	82 %
R&D	967	993	1 534	1 016	1 088	1 281	699	437	451	487	483	348	386
R&D-%	33 %	30 %	62 %	41 %	58 %	64 %	26 %	15 %	17 %	16 %	19 %	11 %	12 %
Sales&Marketing	4 024	5 956	3 134	4 058	3 673	2 408	1 972	1 800	1 861	1 606	1 811	1 411	1 271
Sales&Marketing-%	138 %	179 %	127 %	163 %	194 %	120 %	72 %	62 %	70 %	54 %	70 %	47 %	41 %
Operating expenses	8 523	11 095	4 329	7 157	6 461	5 157	3 790	3 222	3 195	2 944	3 079	2 589	2 453
OPEX %	291 %	334 %	175 %	288 %	342 %	256 %	139 %	111 %	120 %	98 %	119 %	86 %	79 %
Operating profit	-7 201	-9 830	-3 638	-5 670	-6 086	-4 321	-2 583	-1 175	-1 352	-805	-1 355	-160	74
OP %	-246 %	-296 %	-147 %	-228 %	-322 %	-214 %	-95 %	-41 %	-51 %	-27 %	-53 %	-5 %	2 %
Acc.rec	1 693	2 412	2 069	1 651	996	537	2 066	949	748	1 296	1 825	1 288	665
Inventories	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current assets	40 072	33 641	28 515	22 096	15 738	7 127	9 494	7 515	5 438	4 313	7 246	6 499	5 241
Acc.payable	1 049	1 679	1 982	923	918	370	807	694	294	173	262	320	204
Current liabilities	2 838	4 697	6 070	7 385	8 887	3 558	5 554	7 113	6 963	5 489	9 439	8 505	6 984
Shareholders equity	66 953	57 286	34 559	25 122	16 021	9 394	3 177	2 152	752	-265	-1 772	-1 916	-1 885
Assets	70 531	63 658	44 111	36 892	26 773	15 159	12 770	10 365	7 715	6 105	8 635	7 610	6 147

Netscreen

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	NA	NA	NA	17 156	19 068	23 003	26 336	28 973	32 037	36 400	41 072	51 070	58 342
Gross margin	NA	NA	NA	11 949	13 219	16 030	18 569	20 481	23 508	26 990	30 902	39 370	44 481
Gross margin-%	NA	NA	NA	70 %	69 %	70 %	71 %	71 %	73 %	74 %	75 %	77 %	76 %
R&D	NA	NA	NA	5 078	6 439	6 970	7 108	7 317	8 061	8 324	9 143	9 782	11 077
R&D-%	NA	NA	NA	30 %	34 %	30 %	27 %	25 %	25 %	23 %	22 %	19 %	19 %
Sales&Marketing	NA	NA	NA	12 306	13 749	14 573	14 156	14 666	15 161	16 592	17 495	20 162	20 037
Sales&Marketing-%	NA	NA	NA	72 %	72 %	63 %	54 %	51 %	47 %	46 %	43 %	39 %	34 %
Operating expenses	NA	NA	NA	20 248	21 817	25 029	24 896	26 221	27 418	29 130	30 786	34 135	35 972
OPEX %	NA	NA	NA	118 %	114 %	109 %	95 %	91 %	86 %	80 %	75 %	67 %	62 %
Operating profit	NA	NA	NA	-8 299	-8 598	-8 999	-6 327	-5 740	-3 910	-2 140	116	5 235	8 509
OP %	NA	NA	NA	-48 %	-45 %	-39 %	-24 %	-20 %	-12 %	-6 %	0 %	10 %	15 %
Acc.rec	NA	NA	NA	NA	NA	NA	16 355	16 883	17 548	14 018	18 046	19 675	21 180
Inventories	NA	NA	NA	NA	NA	NA	1 877	1 376	1 052	1 690	2 249	1 796	2 363
Current assets	NA	NA	NA	NA	NA	NA	41 937	245 826	254 183	261 533	277 001	301 841	327 438
	NA	NA	NA	NA	NA	NA							
Acc.payable	NA	NA	NA	NA	NA	NA	4 586	4 350	3 641	3 124	5 027	5 331	5 939
Current liabilities	NA	NA	NA	NA	NA	NA	33 607	36 766	42 431	44 452	53 705	67 165	80 148
Shareholders equity	NA	NA	NA	NA	NA	NA	-42 611	213 267	215 760	220 973	288 889	302 761	317 837
Assets	NA	NA	NA	NA	NA	NA	50 201	252 852	260 569	267 372	346 684	373 414	400 911

Network Associates

$000S	Q1-00	Q2-00	Q3-00	Q4-00(*)	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	214 456	233 672	238 737	58 827	170 339	195 914	209 042	259 183	220 712	232 959	232 190	255 996	215 208
Gross margin	182 213	195 597	199 739	11 448	136 426	157 384	167 658	219 865	180 076	193 174	193 477	217 706	183 587
Gross margin-%	85 %	84 %	84 %	19 %	80 %	80 %	80 %	85 %	82 %	83 %	83 %	85 %	85 %
R&D	41 675	42 885	45 893	43 015	39 973	34 886	33 882	37 960	34 605	33 452	37 824	42 920	46 430
R&D-%	19 %	18 %	19 %	73 %	23 %	18 %	16 %	15 %	16 %	14 %	16 %	17 %	22 %
Sales&Marketing	96 765	99 658	104 953	99 487	110 134	106 903	104 928	113 296	102 474	106 726	98 719	89 828	88 552
Sales&Marketing-%	45 %	43 %	44 %	169 %	65 %	55 %	50 %	44 %	46 %	46 %	43 %	35 %	41 %
Operating expenses	159 316	164 518	172 576	162 488	180 446	168 672	161 020	181 770	162 495	165 231	172 032	170 870	162 867
OPEX %	74 %	70 %	72 %	276 %	106 %	86 %	77 %	70 %	74 %	71 %	74 %	67 %	76 %
Operating profit	22 897	31 079	27 163	-151 040	-44 020	-11 288	6 638	38 095	17 581	27 943	21 445	46 836	20 720
OP %	11 %	13 %	11 %	-257 %	-26 %	-6 %	3 %	15 %	8 %	12 %	9 %	18 %	10 %
Acc.rec	161 115	176 185	184 420	122 315	80 457	86 523	124 316	136 366	84 433	101 521	114 727	160 179	109 235
Inventories	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current assets	723 408	712 723	766 254	620 692	589 692	662 113	1 002 228	1 082 787	1 117 875	1 203 976	1 122 744	1 246 810	1 077 467
Acc.payable	29 150	35 715	38 936	46 816	33 469	21 360	24 906	26 368	22 590	18 797	22 474	29 947	33 164
Current liabilities	411 788	429 448	405 778	423 699	410 982	429 562	500 133	541 034	491 969	776 380	808 418	706 782	692 514
Shareholders equity	697 493	681 502	700 606	518 651	414 740	391 352	390 605	444 787	543 978	557 512	699 611	817 425	833 260
Assets	1 545 404	1 561 543	1 549 748	1 384 848	1 271 957	1 274 021	1 632 570	1 627 132	1 693 021	1 749 758	1 933 063	2 056 928	1 882 254

(*) Preliminary results reported for the quarter and year ending December 31, 2000, include an approximate $ 120 million shortfall to revenue associated with the company's election not to replenish distributor sales made during the quarter and to take inventory returns as requested by distributors

Nortel

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	6 322	7 821	7 314	8 818	6 177	4 610	3 694	3 030	2 912	2 773	2 355	2 520	2 399
Gross margin	2 604	3 336	3 218	4 014	1 860	426	21	1 037	758	958	901	990	1 029
Gross margin-%	41 %	43 %	44 %	46 %	30 %	9 %	1 %	34 %	26 %	35 %	38 %	39 %	43 %
R&D	851	1 011	1 016	1 127	1 027	927	808	462	595	579	565	491	489
R&D-%	13 %	13 %	14 %	13 %	17 %	20 %	22 %	15 %	20 %	21 %	24 %	19 %	20 %
Sales&Marketing	1 192	1 481	1 380	1 643	1 392	1 407	1 919	1 193	744	767	682	482	487
Sales&Marketing-%	19 %	19 %	19 %	19 %	23 %	31 %	52 %	39 %	26 %	28 %	29 %	19 %	20 %
Operating expenses	2 716	2 859	2 418	3 199	2 434	2 552	2 714	1 450	1 339	1 346	1 247	973	976
OPEX %	43 %	37 %	33 %	36 %	39 %	55 %	73 %	48 %	46 %	49 %	53 %	39 %	41 %
Operating profit	-112	477	800	815	-574	-2 126	-2 693	-413	-581	-388	-346	17	53
OP %	-2 %	6 %	11 %	9 %	-9 %	-46 %	-73 %	-14 %	-20 %	-14 %	-15 %	1 %	2 %
Acc.rec	7 046	6 939	7 337	8 198	7 520	5 587	2 859	2 923	2 727	2 338	2 007	1 918	1 857
Inventories	3 625	3 364	4 059	4 336	4 165	2 633	1 991	1 579	1 489	1 453	1 132	889	846
Current assets	14 203	15 559	15 211	16 530	15 720	13 688	13 439	11 762	11 148	11 152	9 915	8 476	8 194
Acc.payable	2 575	2 598	2 547	3 102	2 234	2 042	1 923	1 988	1 883	1 600	1 286	902	776
Current liabilities	7 524	8 157	7 727	9 058	7 896	10 509	10 275	9 457	9 179	8 302	7 518	6 982	6 584
Shareholders equity	18 855	21 969	22 332	29 109	29 292	9 988	6 662	4 824	3 990	4 911	3 014	1 960	2 140
Assets	29 953	34 035	33 903	42 180	42 600	25 503	23 841	21 137	19 936	20 086	17 440	15 971	15 894

Sonicwall

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	13 407	16 473	18 405	21 163	24 574	26 600	27 800	33 095	28 100	27 700	24 411	22 962	20 306
Gross margin	9 747	12 412	14 068	15 649	18 671	20 200	21 300	25 200	20 200	20 200	17 003	15 799	12 885
Gross margin-%	73 %	75 %	76 %	74 %	76 %	76 %	77 %	76 %	72 %	73 %	70 %	69 %	63 %
R&D	1 985	2 516	2 533	4 324	5 394	5 079	5 100	4 829	5 100	4 400	4 185	4 217	4 303
R&D-%	15 %	15 %	14 %	20 %	22 %	19 %	18 %	15 %	18 %	16 %	17 %	18 %	21 %
Sales&Marketing	2 602	3 553	3 816	5 690	6 722	7 657	7 973	10 558	11 524	11 427	10 363	10 578	10 268
Sales&Marketing-%	19 %	22 %	21 %	27 %	27 %	29 %	29 %	32 %	41 %	41 %	42 %	46 %	51 %
Operating expenses	5 448	7 275	7 763	12 279	14 101	15 043	15 500	18 194	19 400	18 400	17 731	17 496	17 105
OPEX %	41 %	44 %	42 %	58 %	57 %	57 %	56 %	55 %	69 %	66 %	73 %	76 %	84 %
Operating profit	4 299	5 137	6 305	3 370	4 570	5 110	5 709	7 037	792	1 853	-728	-1 697	-4 220
OP %	32 %	31 %	34 %	16 %	19 %	19 %	21 %	21 %	3 %	7 %	-3 %	-7 %	-21 %
Acc.rec	4 552	6 178	8 034	11 541	12 560	14 581	15 119	15 642	13 099	11 853	13 853	13 274	9 550
Inventories	1 912	2 306	1 300	2 509	2 906	3 450	5 295	5 489	6 351	6 100	6 436	5 765	5 752
Current assets	246 847	258 885	273 776	254 957	254 981	270 226	278 069	272 058	269 194	268 125	270 795	269 404	269 250
Acc.payable	3 525	2 925	3 289	7 867	6 736	5 904	6 438	7 400	7 090	5 535	6 642	6 802	7 421
Current liabilities	14 153	16 971	19 924	31 933	28 820	28 205	34 441	47 573	41 230	38 325	37 736	35 643	37 079
Shareholders equity	235 108	244 335	257 178	435 758	441 242	449 877	455 383	451 153	453 122	446 931	446 306	357 183	354 014
Assets	249 261	261 306	277 102	488 117	490 837	497 761	508 412	516 351	511 034	501 030	497 211	405 098	402 368

Surfcontrol

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	3 684	5 145	6 715	9 480	11 144	11 149	11 132	13 298	14 093	15 644	15 672	18 716	18 486
Gross margin	3 613	5 052	6 604	9 324	11 001	10 966	10 926	13 158	13 954	15 486	15 548	18 585	18 241
Gross margin-%	98 %	98 %	98 %	98 %	99 %	98 %	98 %	99 %	99 %	99 %	99 %	99 %	99 %
R&D	521	666	952	1 622	1 627	1 461	1 463	1 495	1 556	1 844	1 721	1 905	1 973
R&D-%	14 %	13 %	14 %	17 %	15 %	13 %	13 %	11 %	11 %	12 %	11 %	10 %	11 %
Sales&Marketing	3 351	6 369	5 924	8 195	7 726	9 540	7 707	7 821	8 195	9 131	8 844	9 854	9 867
Sales&Marketing-%	91 %	124 %	88 %	86 %	69 %	86 %	69 %	59 %	58 %	58 %	56 %	53 %	53 %
Operating expenses	6 357	9 981	9 804	12 562	12 630	15 447	12 562	12 394	12 827	14 301	13 901	15 552	15 351
OPEX %	173 %	194 %	146 %	133 %	113 %	139 %	113 %	93 %	91 %	91 %	89 %	83 %	83 %
Operating profit	-2 744	-4 929	-3 200	-3 238	-1 629	-4 481	-1 636	764	1 127	1 185	1 647	3 033	2 890
OP %	-74 %	-96 %	-48 %	-34 %	-15 %	-40 %	-15 %	6 %	8 %	8 %	11 %	16 %	16 %
Acc.rec	3 875	4 157	7 266	8 507	9 314	9 419	7 515	9 175	8 281	12 077	9 113	14 592	12 119
Inventories	72 000	83 000	59 000	68 000	60 000	100 000	124 000	35 000	30 000	18 000	0	0	0
Current assets	41 062	37 719	36 080	36 424	35 625	35 153	33 240	37 323	40 658	49 621	51 992	63 335	67 676
Acc.payable	1 645	2 216	1 978	2 780	2 400	2 649	429 000	907 000	1 291	1 775	2 675	1 792	1 536
Current liabilities	8 096	9 698	17 932	20 180	21 203	25 852	24 599	26 950	28 896	35 642	36 894	41 529	42 912
Shareholders equity	57 126	49 928	146 348	127 388	109 828	78 864	57 103	40 082	25 177	10 890	11 646	14 184	15 726
Assets	71 142	62 739	171 371	151 864	136 639	109 789	87 701	74 180	61 336	53 730	55 269	66 296	70 731

Symantec

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	187 205	191 358	192 296	219 294	250 606	228 036	242 372	290 247	310 783	316 041	325 231	375 635	390 039
Gross margin	158 196	163 521	165 688	188 356	208 490	185 915	198 477	237 682	257 482	260 589	264 072	310 355	321 814
Gross margin-%	85 %	85 %	86 %	86 %	83 %	82 %	82 %	82 %	83 %	82 %	81 %	83 %	83 %
R&D	24 842	25 769	28 711	31 524	40 669	39 471	40 020	40 714	43 774	45 488	47 344	50 022	54 417
R&D-%	13 %	13 %	15 %	14 %	16 %	17 %	17 %	14 %	14 %	14 %	15 %	13 %	14 %
Sales&Marketing	76 725	76 975	75 421	87 093	106 714	104 303	104 247	109 742	112 545	115 168	124 896	139 479	145 486
Sales&Marketing-%	41 %	40 %	39 %	40 %	43 %	46 %	43 %	38 %	36 %	36 %	38 %	37 %	37 %
Operating expenses	112 290	112 745	113 783	129 914	161 297	155 579	155 276	165 760	172 517	176 010	189 494	208 847	222 391
OPEX %	60 %	59 %	59 %	59 %	64 %	68 %	64 %	57 %	56 %	56 %	58 %	56 %	57 %
Operating profit	45 906	50 776	51 905	58 442	47 193	30 336	43 201	71 922	84 965	84 579	74 578	101 508	99 423
OP %	25 %	27 %	27 %	27 %	19 %	13 %	18 %	25 %	27 %	27 %	23 %	27 %	25 %
Acc.rec	47 266	52 285	92 599	117 663	116 661	115 829	141 429	154 665	89 223	131 701	154 128	195 485	149 664
Inventories	5 675	2 532	2 895	4 636	5 855	2 464	7 068	11 947	7 463	5 424	8 272	10 700	5 912
Current assets	545 537	647 189	671 845	911 936	781 901	849 314	721 335	1 461 837	1 562 819	1 757 204	1 439 997	1 745 900	1 988 146
Acc.payable	43 030	48 271	52 745	59 473	66 109	55 127	61 261	72 770	70 057	68 915	78 826	74 877	67 720
Current liabilities	226 517	267 052	278 597	359 642	412 717	397 574	434 660	557 585	579 098	651 747	704 773	830 167	894 624
Shareholders equity	617 957	660 163	692 643	1 630 300	1 376 501	1 434 427	1 235 686	1 254 899	1 319 876	1 444 560	1 436 862	1 607 209	1 764 379
Assets	846 027	929 319	973 952	1 992 305	1 791 581	1 834 364	1 672 709	2 414 847	2 502 605	2 699 831	2 746 959	3 040 852	3 265 730

Tumbleweed

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	6 610	10 090	12 434	8 204	4 017	7 679	8 155	9 197	8 094	5 962	5 551	5 918	5 781
Gross margin	4 362	6 898	8 875	4 086	965	4 594	5 142	6 072	5 911	4 111	3 955	4 480	4 368
Gross margin-%	66 %	68 %	71 %	50 %	24 %	60 %	63 %	66 %	73 %	69 %	71 %	76 %	76 %
R&D	2 843	3 171	4 205	5 488	3 704	4 419	3 615	4 148	3 208	2 408	2 286	2 184	1 963
R&D-%	43 %	31 %	34 %	67 %	92 %	58 %	44 %	45 %	40 %	40 %	41 %	37 %	34 %
Sales&Marketing	7 192	9 742	10 777	17 065	9 291	10 221	8 472	8 462	5 616	5 242	3 944	3 202	3 441
Sales&Marketing-%	109 %	97 %	87 %	208 %	231 %	133 %	104 %	92 %	69 %	88 %	71 %	54 %	60 %
Operating expenses	11 675	15 225	17 893	27 690	15 233	16 653	14 373	15 339	10 427	8 448	7 139	6 741	6 826
OPEX %	177 %	151 %	144 %	338 %	379 %	217 %	176 %	167 %	129 %	142 %	129 %	114 %	118 %
Operating profit	-7 313	-8 327	-9 018	-23 604	-14 268	-12 059	-9 231	-9 267	-4 516	-4 337	-3 184	-2 261	-2 458
OP %	-111 %	-83 %	-73 %	-288 %	-355 %	-157 %	-113 %	-101 %	-56 %	-73 %	-57 %	-38 %	-43 %
Acc.rec	4 980	11 962	19 315	11 220	11 138	10 160	8 757	6 795	5 468	4 419	4 530	4 764	4 017
Inventories	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current assets	54 561	46 701	111 757	90 358	72 691	60 937	54 605	51 967	47 501	42 097	36 480	35 123	32 128
Acc.payable	5 514	2 774	4 409	3 872	4 034	3 327	3 658	2 738	2 923	3 016	1 988	1 653	1 958
Current liabilities	15 569	14 350	24 236	23 849	26 542	26 059	26 730	19 849	18 306	16 203	13 786	13 823	13 569
Shareholders equity	45 883	39 379	176 833	153 612	72 600	59 434	49 425	43 095	39 121	28 556	24 471	21 831	19 555
Assets	62 576	56 268	202 648	178 900	100 243	86 291	77 155	65 310	59 504	46 831	39 594	37 809	35 116

Watchguard

$000s	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	9 802	13 740	17 235	19 926	17 102	17 508	17 268	12 405	15 512	17 848	20 075	22 065	21 809
Gross margin	6 279	8 842	11 048	12 615	10 459	10 525	10 604	6 213	9 699	11 427	6 841	15 283	15 359
Gross margin-%	64 %	64 %	64 %	63 %	61 %	60 %	61 %	50 %	63 %	64 %	34 %	69 %	70 %
R&D	2 521	3 262	3 413	4 704	5 271	4 740	4 129	4 714	4 668	6 015	5 306	4 869	5 219
R&D-%	26 %	24 %	20 %	24 %	31 %	27 %	24 %	38 %	30 %	34 %	26 %	22 %	24 %
Sales&Marketing	5 559	5 967	5 849	6 838	8 171	7 690	7 380	6 476	7 438	8 763	8 859	8 633	8 673
Sales&Marketing-%	57 %	43 %	34 %	34 %	48 %	44 %	43 %	52 %	48 %	49 %	44 %	39 %	40 %
Operating expenses	9 234	10 478	10 965	13 437	15 312	14 461	13 569	13 121	14 106	16 778	15 951	15 490	15 826
OPEX %	94 %	76 %	64 %	67 %	90 %	83 %	79 %	106 %	91 %	94 %	79 %	70 %	73 %
Operating profit	-2 955	-1 636	83	-822	-4 853	-3 936	-2 965	-6 908	-4 407	-5 351	-9 110	-207	-467
OP %	-30 %	-12 %	0 %	-4 %	-28 %	-22 %	-17 %	-56 %	-28 %	-30 %	-45 %	-1 %	-2 %
Acc.rec	6 356	8 701	11 772	15 271	12 330	13 369	12 226	6 363	8 944	9 260	8 777	8 813	10 183
Inventories	3 391	5 339	5 488	7 026	6 110	5 132	5 704	4 413	2 965	3 049	4 829	4 442	6 259
Current assets	125 440	130 621	136 337	140 590	136 808	136 784	137 532	128 519	125 422	108 857	109 214	106 992	108 602
Acc.payable	4 817	5 017	6 033	7 256	4 698	5 838	5 056	4 032	1 919	4 965	7 289	4 905	5 455
Current liabilities	11 983	15 918	19 665	23 525	21 361	25 973	27 104	24 727	24 461	34 629	36 639	37 534	38 510
Shareholders equity	121 109	122 049	127 237	172 405	186 176	160 943	157 848	148 304	144 141	165 290	162 531	151 764	151 777
Assets	133 092	137 967	146 902	195 930	189 537	186 916	184 952	173 031	168 602	199 919	199 170	189 298	190 287

Websense

$000S	Q1-00	Q2-00	Q3-00	Q4-00	Q1-01	Q2-01	Q3-01	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02	Q1-03
Revenue	3 125	3 794	4 743	5 779	6 861	8 203	9 549	11 280	13 035	14 550	16 005	17 375	18 504
Gross margin	2 506	3 130	4 063	5 035	6 044	7 366	8 638	10 243	12 102	13 489	14 924	16 280	17 199
Gross margin-%	80 %	82 %	86 %	87 %	88 %	90 %	90 %	91 %	93 %	93 %	93 %	94 %	93 %
R&D	1 577	1 486	1 544	680	1 812	1 860	1 837	2 133	2 307	2 571	3 063	3 016	3 218
R&D-%	50 %	39 %	33 %	12 %	26 %	23 %	19 %	19 %	18 %	18 %	19 %	17 %	17 %
Sales&Marketing	2 472	3 205	3 116	3 933	4 276	4 978	4 531	5 922	5 939	6 296	6 610	7 356	6 635
Sales&Marketing-%	79 %	84 %	66 %	68 %	62 %	61 %	47 %	53 %	46 %	43 %	41 %	42 %	36 %
Operating expenses	4 786	5 421	5 580	6 717	7 291	8 304	7 554	8 765	9 913	10 245	11 176	11 404	11 397
OPEX %	153 %	143 %	118 %	116 %	106 %	101 %	79 %	78 %	76 %	70 %	70 %	66 %	62 %
Operating profit	-2 280	-2 291	-1 517	-1 682	-1 247	-938	1 084	1 478	2 189	3 244	3 748	4 876	5 802
OP %	-73 %	-60 %	-32 %	-29 %	-18 %	-11 %	11 %	13 %	17 %	22 %	23 %	28 %	31 %
Acc.rec	3 770	4 547	5 197	7 598	8 176	7 327	10 097	12 526	11 526	12 734	15 370	19 840	15 944
Inventories	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current assets	81 178	81 078	83 897	89 473	93 209	97 354	105 141	116 718	123 509	134 063	145 326	170 221	177 525
Acc.payable	589	440	431	815	485	246	457	640	389	621	1 032	761	796
Current liabilities	12 215	13 737	16 435	20 454	23 548	26 277	30 798	36 872	40 105	43 482	48 664	55 762	59 629
Shareholders equity	65 169	64 116	63 796	64 064	64 120	65 091	67 621	70 680	74 013	80 228	84 950	106 711	110 608
Assets	83 497	83 681	86 587	92 454	96 116	100 287	108 179	119 812	126 410	137 063	148 445	180 188	187 460